

AMERICAN

CINEMATOGRAPHER

The Motion Picture CAMERA Magazine

this issue

Photographing Miniatures

Infra-D on the Ground

Metal Set-Platform Construction

Making Industrial Movies

... and other Features

JUNE, 1934

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Next Month

- L. O. Huggins returns with an article on the "Language" of Color. A timely topic with so much discussion going on of the new Technicolor process which the R.K.O. Studios will employ on the color subjects to emanate from that organization.
- The European Viewpoint on 16mm Sound will be discussed. We will give the angle of the German mind on this technical problem which is so popular today.
- Members of the American Society of Cinematographers will contribute from their rich experience in the studios on things technical and artistic.



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A still from "Motor a' Men" featuring Leon Errol. Director, Ray Mack. Lighting by Frank Murphy.

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THE AMERICAN SOCIETY OF CINEMATOGRAPHERS was founded in 1918 for the purpose of bringing into closer confederation and cooperation all those leaders in the cinematographic art and science whose aim is and ever will be to strive for pre-eminence in artistic perfection and technical mastery of this art and science. Its purpose is to further the artistic and scientific advancement of the cinema and its allied crafts through unceasing research and experimentation as well as through bringing the artists and the scientists of cinematography into more intimate fellowship. To this end its membership is composed of the outstanding cinematographers of the world with Associate and Honorary memberships bestowed upon those who, though not active cinematographers, are engaged none the less in kindred pursuits, and who have, by their achievements, contributed outstandingly to the progress of cinematography as an Art or as a Science. To further these lofty aims and to fittingly chronicle the progress of cinematography, the Society's publication, *The American Cinematographer*, is dedicated

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Why must G-E scientists know about SHADOWS?



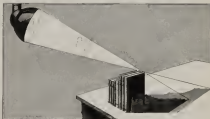
A. Harsh shadows produced by concentrated



B. Soft shadows created by lamp in reflector

THESE three illustrations bring out, simply, three basic facts about shadow formation. Picture A shows the harsh, sharp shadows produced by a concentrated light source, such as a bare lamp. Picture B shows the softer shadows created by a somewhat diffused light source, such as that same lamp in a reflector. Diagram C illustrates the principle that the sharpness of a shadow depends upon the distance of a light source as well as upon its size . . . and hence that the sharpness of a shadow remains unchanged, provided the diameter of the light source is proportionally increased or decreased as the distance from source to subject is increased or decreased.

Cinematographers are familiar with these basic principles about shadows and with their several corollaries . . . and with scores of refinements of them gained from long, practical experience.



C. The sharpness of a shadow depends upon both the distance of a light source and its size

Why, then, is it important for G-E laboratory experts to be grounded in the fundamentals?

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**GENERAL  ELECTRIC
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A set-minature, from "Cleo Laine." The foreground is a full-size set, beyond the railing, statue and stairs, the set is a miniature.

ALMOST since the inception of the motion picture advantage has been taken of the fact that the camera creates its own scale and perspective. Understanding these laws, we can so photograph a large object that upon the screen it appears small—or photograph objects or scenes which are actually small, and make them appear large on the screen. Commodore J. Stuart Blackton has stated that one of the first productions of the old Vitagraph Company, made at the turn of the century, was "The Battle of Manila Bay," done so successfully in miniature that even trained naval experts were sure a Vitagraph cameraman had actually photographed the real battle. From these early beginnings down to such present-day achievements as "King Kong" and "Alice in Wonderland," which owed their success in a great measure to painstaking miniature work, the miniature has been a vital adjunct to motion picture production.

Even films radically different from such examples of out-and-out "trick photography" as those mentioned, owe much to miniatures. Many scenes which would be prohibitively expensive or actually dangerous to film in the normal manner are made safely, economically and—which is more important—artistically, by the use of miniatures. Shipwrecks, railroad, auto and airplane wrecks, and the like, are brought to the screen safely and at a much lower cost than would be possible otherwise. The same, of course, is true of floods, explosions and volcanic eruptions. But many other scenes are made in miniature, even though they could conceivably be done normally: inserts of ships at sea or at anchor, of airplanes, trains, and the like, can often be secured more satisfactorily in miniature, and the cost of even an "expensive" miniature is vastly less than that of chartering a liner or a train.

A third class of miniatures, vitally important in many films of a general nature, yet rarely considered as "miniatures," is the "set-miniature," in which part of the set is constructed full-scale, and part of it in miniature. Properly executed and photographed, this construction is not only perfectly satisfactory, but also gives the shot far greater depth than would be possible otherwise.

How Miniatures Are Photographed

by
J. D. Jennings

As a rule, miniatures of any type are designed jointly by the art department, the research department, and experts from the studio's prop department; in many studios, these departments maintain a staff of designers and workmen who specialize largely upon miniature work. A few studios have a separate department for the construction of miniatures. In almost every studio, the photographing of miniatures is detailed to a separate, specialized department with a staff of specialists in miniature cinematography.

Photographing miniatures demands a high degree of specialization. The majority of miniature scenes are photographed at extremely high camera-speeds, under artificial light. This naturally requires a high intensity of illumination, while the small size of the miniature sets and objects being photographed requires extreme delicacy in the arrangement of the lighting. There is the further requirement of having to match the lighting, photographic quality, etc., to the type of photography used by the production cinematographer directing the photography of the production as a whole. A miniature scene is a failure unless it is in every way a perfect match for the rest of the production. It must not advertise itself as a miniature.

There are few, if any, set rules about photographing miniatures. Each scene must be considered individually, according to the basic factors entering into its particular problem. As has already been pointed out, the majority of miniatures are photographed at high camera-speeds; this smooths out any irregularities in motion, and lends motionlessness—actually—to the shot. A miniature liner, for instance, could be photographed at normal sound-speed, but if it were, the result would be a shot that was obviously a miniature. The nipples on the water, for instance, would look like nipples, and their effect upon the ship would make it jiggle around as no liner really does. Therefore, we photograph such scenes at camera-speeds of from six to eight times normal. This slows the nipples down to a very good approximation of the waves and swell of the open sea, and in the process, magnifies the nipples into waves. At the same time, the ship, instead of bobbing like a cork on the nipples, sways majestically and smoothly, like a full-sized liner. In the same way, the smoke from the

(Continued on Page 86)



Above: Infra-D film, no filter. Heavy haze.
The scene is reproduced as the eye saw it.
Below: Infra-D film, 70 filter. Note haze penetra-
tion, and altered rendition of foliage.

Infra-D As Used on the Ground

by
George J. Lancaster, A. S. C.

Infra-D film is a photographic material especially designed to meet certain requirements of specialized workers in the field of photography. In some of its phases it is quite adaptable for cinematographic work. This film carries a spectral sensitivity which is quite different from normal panchromatic emulsions in that its sensitivity is restricted to the blue, deep red, and near infra-red regions of the spectrum. Between these two extremes, i. e., in the green and yellow, this film has no sensitivity. Because of this fact it cannot be used interchangeably with normal panchromatic emulsions.

As the degree of blackening of a photographic material depends upon the light intensity, the time of exposure, and the wave length or color of the light, it is customary, and in fact almost necessary, when using Infra-D film to use filters. These filters naturally cause a definite increase in the overall exposure. The filters adaptable for this kind of work are those having transmission in the deep red and

of the spectrum. These filters absorb all of the blue light and as a result the emulsion as used with the filters records only red and near infra-red light. In photography of this type the actual filter factors of the various filters which can be used are given very little consideration. It is usually necessary of normal cranking speeds to use a rather fast lens fairly wide open. In motion picture work where the camera-taking speed is fixed it is necessary to accomplish the desired exposure condition by adjustments of the lens diaphragm or by variations in the angular opening of the camera shutter.

This type of film has been used in motion pictures work almost exclusively for air sequences. It is the purpose of this paper to discuss the use of this film when used on the ground.

Its fundamental advantage in this respect lies in its haze-cutting ability and it is therefore a particularly useful film in rendering details at distances where usually these distant objects are blurred and indistinct because of the intervening haze. This film has a definite useful field but it must not be used to photograph normal scenes where normal rendition is desired. It might be said that weird and exaggerated effects can be more readily produced with the Infra-D film than with normal panchromatic negative.

It was evident from the first few feet we shot on a test for a major studio that it is impossible to backlight a scene and at the same time secure satisfactory photographic results. This, of course, is diametrically opposed to the practice of all cinematographers who first look to their backlight. Infra-D, however, makes us reverse the action, and for best results, use a light which is condemned by all good photographers—a flat front light. This light is necessary, perhaps, because there is so much green in nature, and Infra-D, not being sensitive to green, needs the assistance given by sunlight to shed some of the other colors of the spectrum on the green and also to bring it out by means of light.

Fairly good results were obtained with three-quarter lighting. However, this type of lighting cannot be used on all scenes. The results with this lighting were a slight contrast between the shadows of buildings and trees, while the objects brilliantly lighted were rendered in grey tones. The test scene was photographed in early spring, the countryside was fresh and green. In this test we wanted to see to what extent we could retain the greens. We tried a 23A filter plus a 56 filter. As you know, the 23A Wratten filter is light red while the 56 filter is green. This combination gave us a good green rendition.

We wanted to photograph snow-capped Mt. Davidson from the floor of the desert. Our set-up was 17 miles from the mountain. In addition to the head of the mountain being snow-capped, huge snow clouds gathered intermittently beyond the mountain, the balance of the landscape was yellowish in hue. We shot this with a flat front light.

We selected this particular scene because of the Hippie blue sky, white clouds lighted at top and dark underneath, snow on the mountains, below the snow line was sagebrush and undergrowth characteristic of the desert, blending into the floor of the desert with its alkali sand mixture. These combinations of tones and colors we felt would be ideal for determining the results obtained with the filters recommended for Infra-D Film. These filters are No. 70 Red Filter, No. 88 Deep Red Filter and 23A plus 56. You will note from the description of this scene that it was lacking in greens.

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A modern industrial film in production, Edwin L. Dyer, A. S. C., at the camera. Note modern equipment, including latest DeBevoise Street Camera, and standardized-unit construction of lamp-rail.

Industrial Movies Forge Ahead

by
Edwin L. Dyer, A. S. C.

(From Handy Picture Service, Detroit)

THE BUSINESS of making movies for industrial uses has changed tremendously within the past few years. It is no longer a haphazard, "shoot-and-ship" enterprise, but a stable adjunct to "big business," operating on a scale and in a manner comparable to the best of Hollywood's major studios. Business leaders have found definite work for the film to do, both within their organizations, and in their relations with the public. The majority of films are made to suit a specific purpose. As a rule, industrial films are intended for one of three basic fields: first, exhibition within the firm, to introduce new products or new methods to the personnel; second, for exhibition to the general public, in a manner similar to sponsored radio programs and continuities, combining entertainment with a minimum of advertising; and third, as definite propaganda as to the uses or manufacture of a product, or the resources, researches and services of a firm, for educational use in showings before schools, clubs, and the like.

Accordingly, the industrial film of today is planned and produced as painstakingly as any Hollywood-made feature production. The majority are comedy-dramas, of feature length (nine to twelve reels), and embellished with every technical refinement of a major-studio production. The stories are well written and entertaining, though naturally centered to a greater or lesser extent upon the particular firm or product sponsoring the production. The majority are 100% dialog, with capable professional actors (some of them real "box office names") playing the leading parts. The physical details of production—sets, costumes, and the like—would not be out of place in any Hollywood production. The sound is of the best, in our studio, Western Electric wide-range recording, handled by experienced recordists trained in the ERII laboratories. Photography and lighting are on a par with that seen in major-studio releases: a great majority of these films are photographed in natural color, which has been proven markedly superior to black-and-white for commercial purposes.

Aside from the fact that we are usually barred from attempting extreme low-key lightings, as our films must often be shown under more or less unfavorable projec-

tion circumstances, the general photographic technique is identical with that used in Hollywood. The most modern of photographic and lighting equipment is used, and is available in abundance ample for any emergency. All types of special-process work are used; the projected-background method has proven even more useful in industrial work than it is in the making of dramatic films. The same may also be said of Optical Printing and re-recording, which are invaluable.

One phase of our set-construction is novel, and of interest to Hollywood workers, the spot-rails, which are placed at the top of the sets, just as in Hollywood, are built in standardized sections, designed so that they clamp together, with a special groove which fits over the top of the set. They are supported from the floor, rather than hung from the roof, and, thanks to the standardized construction, can be assembled in a few minutes, and used and re-used repeatedly. This construction has proved to be a great time and money saver.

The making of these films often entails a considerable amount of location work, frequently requiring us to photograph actual interior scenes in factories, laboratories, and the like, or in famous buildings which could not be economically reproduced in the studio. In many instances it would be impossible to use the regular studio lighting equipment in these places. Accordingly, I have devised special lightweight equipment, which, while easily portable, is none the less highly efficient and may be used on any ordinary circuit. This lighting equipment is an adaptation of my own of "Kodaflector" units and clamp lights (both made by Eastman) and using Photoflood lamps. I have 24 of the Kodaflector units, which consist of a folding tripod of the music-stand type supporting two reflectors on a horizontal bar.

The reflectors are collapsible, and the whole outfit occupies very little space. In addition, I carry a dozen of the clamp lights, which may be attached to any object for support, and, thanks to a rubber-covered spring clamp, used without fear of marring anything. Since each of these lamps draws but 2.2 amperes, yet has almost the same efficiency as a regular 1000-watt studio lighting unit, I can be assured of ample illumination without overtaxing any normal wiring. The small cur-

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Above: The metal units assembled to form a lamp-rail.
Below: A camera crane constructed from the metal units.

Standard Metal Construction for Set-Platforming

by
George J. Folsey, A.S.C.

PRESENT-DAY practice in set-platforming is decidedly inefficient, not only from the standpoint of construction economy and flexibility, but often from the cinematographer's viewpoint, as well. The present practice is to use wooden construction, with semi-standardized sections, bolted and nailed together. The entire construction is hung from the roof-girders of the stage by standard wooden members, pierced with bolt-holes at regular intervals. The

electricians' catwalk is made up from standardized wooden sections, while the lamp-rail is usually built up from new and scrap lumber.

In some instances, this construction is satisfactory enough, it supports the lights, and, being independent of the set, allows the removal of "wild" walls without disturbing the lighting set-up. On the other hand, this construction is far from flexible—it permits only certain definite adjustments as to height, often in building the smaller sets the limitations of the platforming necessitate that the set be built several feet higher than is necessary. This forces the cinematographer to place his top and back-lighting units higher than is really desirable, and to focus them upon set and players from angles that are neither photographically satisfactory, nor economical. At the same time, the present construction is often wasteful of material, and it likewise takes a good deal of time to erect.

For some years, the writer has hoped a more satisfactory construction might be evolved. Within the past month, Phil Tannuso, cinematographer for the Gaiety-British studio, visited Hollywood, and described to me the set-platforming practice used in the British studios, which seems ideal.

In England, standardized metal construction is used throughout, the only wooden members are the sections used for flooring the catwalk. The rest of the construction is built up of standardized steel tubes, joined together by metal clamps. The tubular members come in several lengths—long, short, and intermediate—all of which fit into the joining clamps, which are collar-shaped, and made in a variety of forms for joining the tubes crosswise, endwise, and at different angles, as well as to supply sockets for mounting the lamps.

With this type of construction, there is virtually no limit to the possible adjustments. The supporting members are clamped to the overhead girders (the "Gantry," to use the English phrase). Since the clamps by which the platform-members are attached to these uprights are of the collar type, and not dependent upon any arbitrarily-spaced bolt-holes, the lamp-rail and catwalk may be placed at any desired height. This eliminates the necessity of building the sets to a height that suits the platforming, and should result in greatly increased efficiency, improved photography, and considerable savings in set-construction.

The members supporting the catwalk are clamped to the uprights, and the wooden walk is laid over them. The lamp-rail, instead of being made of nailed wooden members, is of the same tubular metal construction. Special collar-type clamps fit upon this, and carry sockets for the lamp-bases; obviously, they may be spaced as desired, and slid easily to one side or the other for any minor adjustments that may be needed during shooting.

Often it is necessary to place a lamp low on the wall of a set in order to obtain some particular effect. With our present methods, this is a time-consuming job, and, whether the lamp is slung against the wall by ropes, or fastened to wooden members nailed to the wall or platforming, the result is seldom perfectly satisfactory.

Using this metal construction, placing a lamp in this manner is very simple. A tubular member is simply clamped to the spot-wall, and the lamp slipped into a fitting clamped to the lower end. It can be done very quickly, and, thanks to the flexibility of the tube-and-clamp construction, the lamp may be placed with extreme accuracy.

Obviously, this type of construction is economical. The sets may be built solely to suit the requirements of action and photography, and the platforming adapts itself to the

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Some of the sketches evolved by Mr. Howe and Art Director Henry Oliver for the "Viva Villa" sequence (slightly reduced)

Upsetting Traditions With "Viva Villa"

by
James Wong Howe, A. S. C.

THE RE is all too little co-operation between the Art Director and the Director of Photography. The Art Director reads the script, and proceeds to design sets which embody his individual conception of the story. The Director of Photography reads the script, and forms his own mental concept of its background.

In the meantime, the Art-Director's sketches have taken shape as final sets for the production. When production is to commence, the Director of Photography, with his pre-conceived idea of what the sets should be, walks onto the stage—and finds himself faced with the problem of photographing the action on sets which do not conform to his idea of the photo-dramatic treatment of the story. He may have visualized a dark set for certain action—and find that a very light one has been built, he may wish to use extremely low camera set-ups for certain other scenes—and find that the sets are not high enough to permit him to do so. The result is seldom satisfactory to either

the Director of Photography or the Art Director, for the ideas and artistic conceptions of each suffer.

On "Viva Villa," however, Art Director Henry Oliver and I were able to avoid these disappointments. Instead of working separately, we co-operated very closely from the start. We studied the script together, and made hundreds of sketches of the way we visualized each scene. Frequently, we would make half-a-dozen different sketches of each scene, finally selecting the one which seemed most perfectly suited to the photographic and dramatic requirements of the scene, as we jointly conceived it. From these, we prepared a complete pictured scenario of the film, which clearly indicated the sets and the camera-treatment for each scene. These sketches were incorporated in the final script of the picture: they served the dual purpose of simplifying both the production and pre-production problems, and of assuring better co-ordination between the Director and the Director of Photography.

Before the actual start of production, for instance, locations have to be chosen. When the script embodies such sketches as these, the problem of the location scout is easier, for the sketches tell him exactly what the Director of Photography, the Art Director and the Director want. He need not waste time and effort, picking out a number of locations which "might do", he searches until he finds a spot which closely approximates the sketch he carries. Then he can report, "Here's your sketch—and there's the location which matches it."

Similarly, these sketches show us quite clearly the lighting-effects which will be the most effective for each shot. On location sequences, this is especially important, for there is a great waste in getting to a location, and then finding that the light will not be at the right angle for your effect until perhaps hours later. Combining the sketches with the location-scout's reports, we were able to figure out in advance exactly the right time of day to photograph each scene to give us the best visual effects. Thus, in planning a day's work, we could look at the script, and see that, of the scenes to be done that day, certain ones would best be photographed in the morning, others in the afternoon, and routine the schedule accordingly.

But it is in the more normal studio-made scenes that this method of preparation seems most advantageous. If, for instance, the Art Director and the Director of Photography feel that any certain scene or sequence requires a definite low-key or high-key treatment, the set can be designed so that it is ideally suited to that treatment. Similarly, if it is decided that one sequence requires only the normal camera-angles, the sets for that sequence will require only routine design and construction. If, on the other hand, some scene or scenes in the sequence will require shots from extremely low set-up, we can have the set built to allow for that, either having the walls built higher throughout, to give us the desired background for such shots, or with special sections extended to the required height, at exactly the places where the low-angle shots will be made. This latter method is probably preferable, for it will permit the Art Director to make the rest of the set lower, thereby allowing the Director of Photography to arrange his lighting at more favorable angles than if the entire set were built with high walls. Obviously, too, marked saving in the cost of constructing such sets will be found.

Similarly, if we decide that a sequence will be more effective if shot from relatively high camera angles, the walls may be made lower than would be necessary if there were a possibility of normal or low-angle set-ups being

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Getting Good Sound Is An Art

by

Harold Lewis, E. E., S. S. E.

Vice-President, Society of Sound Engineers
Winner of Academy Award for Recording, 1933



Harold Lewis, E. E., S. S. E., who recorded "A Farewell to Arms," acclaimed as the best recording in 1933.

THE successful Cinematographer is more than a technician, he is an Artist. Upon the foundation of accurate and extensive knowledge of the technique of cinematography—lighting, exposure, emulsions, optics, and so on—he builds to success with an inborn artistic and dramatic instinct and an acquired understanding of the application of cinematography to Dramatic Art.

It must, inevitably, be the same with the Sound Engineer. He must—especially at present—have an accurate technical knowledge of electrical engineering as applied to sound transmission—circuits, frequencies, acoustics, and the potentialities of the sound-system he is using, but with all this, he must also be an Artist in the dramatic use of sound. He must know when to depart from the technically perfect recording, in order to build to dramatic effect, and how best to use this new ingredient—sound—in most fully benefit each scene and sequence. Like the Cinematographer, he must build upon technique with an inborn artistic instinct.

With the equipment generally in use today, it is surprisingly easy to obtain a commercially adequate recording. But a commercially adequate recording is no more satisfactory for dramatic purposes than is commercially adequate cinematography. The photographic treatment of each scene must be delicately co-ordinated with the dramatic mood and tempo of the action. Frequently, this necessary dramatic treatment requires a radical departure from the straightforward commercial ideal. An extreme low-key or high-effect shot, for instance, would be definitely bad, if considered by the standards of straight photography; yet it is desirable and valuable if used properly in a dramatic film. The same is true of diffusion, or of filtering; each is dramatically valuable in its place, yet actually a definite distortion of normal technique.

Dramatic sound-recording must in the same way often depart from the standard of the commercially ideal record. Like the Cinematographer, the Recording Engineer must vary the key of his recording to suit the dramatic needs of story and scene. A Comedy, for instance, is best recorded in a rather high key. The volume-level is usually higher than normal, and the tonal quality crisp, so add to the intelligibility of fast-paced dialogue and action. There is both a psychological and a mechanical reason for this treatment: the audience viewing a Comedy is relaxed, and the dialogue must therefore be brought to them, also, a successful Comedy is well punctuated with laughs, through which succeeding lines must penetrate.

A Drama, on the other hand, must generally be recorded at a much lower key. Restraint—subtlety—are the keynotes of the modern conception of Drama; a low-keyed recording matches this concept perfectly. Such a treatment is possible, too, because the audience at a Drama is less relaxed than at a Comedy—more alert—actively co-operating. The theatre itself is quieter, there are fewer laughs and so on for the sound to penetrate. In "A Farewell to Arms," for instance, some of the most effective scenes were recorded at an extremely low key, and played in whispers.

A Melodrama requires strongly contrasted sound-treatment, even as it requires strongly contrasted photographic treatment. Many sequences will be recorded in a low key, suddenly punctuated by very highly-keyed scenes. Yet even in the low-keyed recordings for a Melodrama, one dare scarcely go as low as in a Drama, because of the very audible audience reactions.

The problem of the Recording Engineer is complicated by the fact of his virtual physical isolation from the rest of the company on the set. Although recently the use of portable monitoring booths has lessened this isolation, the Recording Engineer is still not as close to the set and the action being filmed as is the Cinematographer. He is, in fact, more like someone listening in on a radio—and like a radio listener, his communication with the set is by telephone, or by leaving his post to go to the set. For this reason, it is vital that the Recording Engineer study the script beforehand, until he is as familiar with it as the Director or Cinematographer. He must know how each scene fits into the pattern of the picture as a whole, what precedes it and what follows, so that he can give it the best and most dramatically expressive sound treatment possible.

In the same way, he must be familiar with the vocal characteristics of the players. Just as certain people universally photograph well, while others require a world of deft lighting and camera-treatment if they are to be favorably presented, so, too, certain voices will record well under almost any conditions, while others require all the technical artifices known to audiography if their voices are to

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HOW MINIATURES ARE PHOTOGRAPHED

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liner's funnel is slowed down and magnified by the slower motion, again increasing the illusion of actuality.

As a rule these ship-miniatures are towed by ropes placed well below the waterline. This gives us better control of the ship, its speed and movement than if the miniature were self-propelling. At times, one or two electricians or mechanics ride inside the ship to operate lights, etc. For shipwrecks, we often build tracks along the bottom of the tank, so that the ships will collide, or run aground, exactly as we wish. For such shots, breakaway baws, or other sections, are of course used. If we have to sink a ship, we have a special, deep section in the tank, and arrange our cables so that the ship can be pulled below the surface, leaving no detail of the sinking to chance.

Obviously, a miniature ship can hardly move fast enough to actually create either the bow-wave or wake so inevitably a part of a feel ship's progress. To supply these, tiny jets of water or compressed air are directed from the proper angles at bow and stern, giving a perfectly realistic effect. These jets are fed through hoses trailed (below the waterline, of course) behind the ship. Similarly, current for navigation, cabin and other lights is supplied from the studio mains. Occasionally a miniature ship will be provided with an electric motor, to power any necessary motion such as, for instance, that of the several hundred pairs of oars or sweeps on Cleopatra's galley in a recent film. In this particular instance, jets of compressed air also provide the white wake of the oars.

Lighting and photographing these miniatures is very similar to lighting and photographing full-sized objects, but on a smaller scale. So the same effects of modeling, key, and so on are obtainable, but lighting a miniature must be done vastly more delicately than for a full-size object. In a ship, for instance, navigation lights are usually represented by tiny flashlight-bulbs, while lights inside the cabins, etc., are provided by ordinary home lamp-bulbs. We have found that the most desirable combination of lighting is to have the set—which is usually painted in monochrome, and highlighted for modeling and perspective in the painting—lit very flat, with the miniature itself lit rather harder, to accentuate it. For day shots, as a rule, I have found that diffused daylight—supplemented as necessary by artificial light—is best for the general lighting, with strong artificial lighting for the modeling lighting on the miniature. For night

effect shots, artificial lighting throughout is best, as filtered night shots throw the contrast off balance, and accentuate the exposure-problems of extreme high-speed camerawork.

A properly-designed miniature should almost automatically take its own perspective, so in theory, there should be a wide choice of lenses permissible. Theoretically, one can make the long-shots with a wide-angle lens, and the closer shots with objectives of longer focal lengths. This, however, does not take into consideration the demands of the high taking-speeds, which necessitate that the lenses be used almost at full aperture. Therefore, in practice, we invariably use a fast 25mm lens for all miniature shots. Even at full aperture such a lens gives excellent depth of field, which is obviously important. A recent miniature, for example (that of Cleopatra's galley), could hardly have been made any other way, for we had in the foreground at a distance of about a yard from the lens, a miniature dock, which served the dual purpose of adding depth to the scene, and giving us an attractive foreground for our composition. The middle distance in this shot—where the galley passed—was fifteen or twenty feet from the lens, while the background, representing a city, harbor and hills, was well over seventy-five feet from the lens. As the scene was shot at high speed, the lens had to be worked at full aperture; obviously only a 25mm lens would give satisfactory depth at full aperture for such a shot.

Most miniature scenes are photographed with rather heavy diffusion which, oddly enough, enhances the illusion of actuality. For night effects many miniature-workers use a graduated neutral-density filter, to simplify the problem of getting a dark night sky. The normal types of diffusion are used—discs, diffusion-screens, and gosses—according to the need of the scene, and the individual technique of the cinematographer.

The choice of cameras for making miniature-scenes, and the routing of camera-inspection and maintenance are absolutely vital. Cameras must be specifically adapted to high-speed work, and maintained in absolutely perfect condition. A pilot-pin movement is essential. Due to the extremely high speeds used—the average is from 340 to 720 feet per minute—particular care must be exercised in threading the camera, and a sensitive, quick-acting automatic cut-off must be provided to guard against film-buckles. Unless the

motor is immediately disconnected in case of a buckle, very serious damage to the camera can result. An equally important problem—and one occurring more frequently—is the prevention of film-scratches. The aperture-plate or film-channel must be kept absolutely clean, and carefully inspected immediately before and after making every shot. Any particles of dirt or grit on the aperture-plate during the making of a high-speed shot will not only cause scratches and abrasions on the film, but pile up a little mound of emulsion which, due to the friction generated by such high speed, melts into a bit of metal almost as hard as steel, and extremely difficult to remove.

As a matter of regular routine, we make it a practice to send our camera to the precision machine-shop for a careful overhauling before making any high-speed miniature shot. Only by this method can we be assured of being reasonably free from camera-troubles.

Infra-D As Used On the Ground

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The first filter we used was the No. 70. This brought out Virginia City which was just below the snow line. It could not be seen plainly with the naked eye. The film, however, with the use of No. 70 filter, brings it out clearly. The topaz sky rendered black, while the top sides of the clouds were absolutely white but those portions of the under sides of the clouds which did not receive the direct light were tinted in all hues of greys and blacks, the floor of the desert came out very light grey, a sort of monochrome. The side of the mountain photographed a deeper grey than the floor of the desert. This picture was shot at sound speed; shutter 160 degrees, stop F 2.5, lens 104mm, Cooke.

We used the No. 88 filter on the same scene. This filter gave us the same color corrections as the No. 70 but to a greater degree, that is, everything was darker, which is natural, as this is a much heavier filter. We could not open the camera lens any wider for this filter as we had it fully open for the No. 70 filter.

As a sort of extra test we tried out the No. 72 filter. This did not prove satisfactory. I photographed the scene in a very dark key which might have been suitable for a night effect, but not for the correction in colors which we were seeking.

It isn't advisable to photograph people with this film. The shadows are inclined to photograph too black, if a shadow is thrown on the face it will show up very black instead of a pleasing half-tone secured with the regular types of film.

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Industrial Movies Forge Ahead

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rent requirements make it unnecessary to carry a special generator truck, or to use heavy cables. I use ordinary No. 10 cable to serve as the supply line, with No. 14 or No. 18 wire for the spreader lines to the individual lamps. By using regular three-way connectors at the junctions of the cables, an extreme flexibility is possible. And since the outfit is so compact, it is easily carried about in the rear seat of an ordinary sedan.

On a recent picture, for instance, I was able to carry my complete lighting and photographic outfit in my car, driving from Detroit to New Orleans, where I photographed scenes in several of the quaint old restaurants which are so famous, and which could hardly be duplicated successfully in any studio. One of my objectives was Antoine's Restaurant, which is exactly the same today as when Antoine Alcatore first opened the doors in 1840. Thanks to this extremely portable equipment, I obtained some unusually interesting shots both of the marble and mirrored dining salon, with its old-world French buffets and chandeliers, and of the cooking operations in the quaint, immaculate kitchens, where the food is still prepared as they did it a century ago. These scenes would have been virtually impossible with regular on-set lighting equipment.

Often, important scenes and sequences must be made in factories where, in addition to the photographic and recording problems naturally incident to such locations, there is the added problem of getting the scenes as required without interfering with the actual work of the plant. This is usually solved by working at night, though of late many plants have recovered to a point where production continues twenty-four hours a day, and our problems are increased accordingly. The portable lighting equipment plays an invaluable part in enabling us to get those scenes as we want them, for there is often insufficient space to accommodate the usual lamps, or insufficient current available.

Recently a fire film required a series of close-ups of the behavior of super-balloon tires under many types of road and driving conditions. To get these we built a platform on each side of the car, mounted on strong wooden beams passing under the chassis, and supported by chains from a yoke on top of the car. We had originally planned to counterbalance the camera and its crew with a load of sand-bags on the opposite platform, but we found that a stationary weight was not satisfactory when we shot the results at fast cornering, blowouts (simulated by firing a .45-caliber revolver bullet into the tire), and the like. So we replaced the sand-bags with members of the crew—rather the camera-staff nor their human counterweights spent a dull moment on that assignment!

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COMBINATION FILTER-DIFFUSER INCREASES OPTICAL EFFICIENCY

It is an established scientific fact that light, passing from air to glass, or vice versa, loses approximately 4% at each such glass-air surface. In other words, if we place an Optical Glass flat in the path of a beam of light, this beam will lose 4% as it enters the glass, and 4% of the remaining 96% as it emerges, making the total loss of light in passing through this apparently clear sheet of glass 8%. To word it differently, if we pass a beam of light through such a glass, this transmission loss will leave us but 92% of the original light-beam after the light has penetrated the glass.

This is, of course, a well known fact but it becomes of decidedly practical importance when, as is so often the case, a number of color and Neutral Density filters are used in combination with a diffusion disc or screen, the whole mounted on a blimped sound-camera, which in itself necessitates photographing through an Optical Glass window. While on location for a recent picture ("Mandolay") I found myself forced to shoot through six such glasses on some scenes; and while this is, of course, unusual, it is by no means uncommon in the regular course of production for a cinematographer to find it necessary to use a diffusion disc, a color filter, and a Neutral Density filter together, which, in addition to the glass-fronted blimp, makes a total of eight glass-air surfaces, each of which takes its 4% toll of the light even before it reaches the lens. These 4% losses may in themselves seem negligible, but the total loss for these eight glass-air surfaces totals 23.9%. In my own extreme case, I found that the loss from these sources totaled approximately 40%.

The obvious solution to such a problem is clearly to combine the functions of as many of these various devices as possible into a single unit, thereby minimizing the number of glass-air surfaces through which the light must pass before reaching the lens. Within the past few years, the Eastman Kodak Company's research experts have pioneered the way, combining the Aero 2 color-filter (which is by long odds the most frequently used in modern production) with the 25% and 50% Neutral Density filters. These combined filters are universally used, and known as the 3NS and 5NS, respectively.

After my experience in making "Mandolay," I began to ask myself if the same principle could not be carried farther, to combine filters, Neutral

Density screens, and diffuser into a single unit, thereby reducing the number of glass-air surfaces to the minimum, and also reducing the danger of flares and reflections from these surfaces.

Therefore, I discussed the problem with Emory Huse, A.S.C., and we, in collaboration with the scientists of the Eastman Research Laboratories, evolved a set of filters combined with the Eastman Motion Picture "A" and "1/2A" diffusion discs. These filter-diffuser combinations are mounted in the same manner as the regular diffusion discs, and consist of the desired disc, upon the flat side of which is cemented any desired filter. My present set includes the 25% and 50% Neutral Density filters, the 3NS, 5NS, Aero 2 and G filters combined with the regular "A" and "1/2A" diffusion discs, the filters are naturally duplicated, one complete set embodying the "A" diffuser, and the other the "1/2A." Such a set is sufficient for all normal needs, and obviously, most any practical filter may be coated upon these diffusion-disc bases.

By this means, we have been able to reduce the number of glass surfaces interposed before the lens from four to two, the blimp-window and the combination filter-diffuser. This reduces the number of glass-air surfaces from eight to four, and the loss of light is reduced from approximately 40% to 15%. To date, on both tests and production, I have been unable to observe any lessened efficiency in the combination, either as a filter or a diffuser. In fact, the results have been so successful that several other cinematographers at the Warner Brothers'-First National Studios have ordered duplicate sets of the combinations.

Obviously, these combinations can be coated on almost any type of diffusion screen, and with most any type of filter or combination of filters that is possible as a single unit. It is even conceivable that some cinematographers or studios required to do a great deal of exterior cinematography with sound, could carry the same process to the ultimate, and combine filter, diffusion-screen and blimp-window in a single interchangeable unit. This would naturally reduce the glass-air transmission losses to a minimum, as there would be but a single glass, whose two surfaces would absorb but 8% of the total light available, and at the same time eliminate the danger of reflections or flares from the glass surfaces.—by Gaetano Gaudin.



Improved Mount for Process
Projector

GEORGE J. TEAGUE, whose process projector was described by Frank B. Good, A.S.C., in the August, 1933, issue of the *AMERICAN CINEMATOPHIL*, has recently perfected further improvements in his machine. The essential designs of the optical and mechanical units are unchanged, save that the clutch between the driving motor and movement has been improved, to allow even more accurate synchronization of camera and projector, and the entire movement is enclosed within a sound-proofed case, slightly larger than that of the previous design, making it possible, when a long projection-show is used, to operate the projector outside of a sound-proofed booth.

The most essential improvement is an entirely new mounting, which gives greater rigidity, and at the same time makes possible effects not otherwise obtainable. The mount consists of a sturdy cast-aluminum pillar, on a detachable, wheeled undercarriage. This undercarriage is fitted with four screw-jack legs, so that the machine can be rigidly anchored, and is removable, so that in a fixed installation the projector may be rigidly and permanently secured in place. The supporting pillar contains a small locker in which movements, lenses, and similar small but valuable parts may be locked when the machine is not in use.

The projection-head and lamphouse are mounted on a tilting base, which may be tilted up or down in the same manner as a tilting tripod-head, by turning a convenient wheel-crank. A curved

sector, sliding in a clevis-bearing, locks the tilt in any desired position.

The projection-head itself is mounted in a separate assembly, in such a fashion that it can be revolved around the optical axis of the optical system. Another sector, sliding in a locking guide, secures the head in any position. Normally, a fifty-degree arc of rotation is provided, but by the use of extension-sectors and a supplementary lock at the axis of rotation, a full 360-degree rotation is possible. The possibilities of this adjustment are tremendous: often, if either the background or the foreground-set is not truly level, it can be corrected by a slight rotation of the projector-head. Similarly, the background may be deliberately placed at an angle for special effects—even, for comedy scenes, inverted. Scenes apparently laid on a boat can be given the proper roll by slowly rocking the projector; this can be done either by hand, or by adding a simple semi-automatic device which is being designed.

Two of these projectors have been completed: one is now in use at the General Service Studios, and the other, Mr. Teague has taken to London, for use in the process sequences of several productions being made by Alexander Korda's London Films.

Upsetting Traditions With "Viva Villa"

(Continued from Page 64)

used in the same manner, if the action indicates the need for crane or perambulator shots, again we can plan for them before the sets are built. In a word, this co-operation between the Art Director and the Director of Photography enables us to plan more efficiently, to build the sets to suit the camera-treatment, rather than (as has so often been the case) building the sets first, and trusting to the skill—and luck—of the Director of Photography to adapt his camera treatment to the sets he is given.

Another phase of the photographic treatment of "Viva Villa" which differs radically from the accepted tradition, is the choice of lenses for many of the different scenes. Normally, one makes close-ups with a two- or three-inch lens, subordinating the background to the more important action of the close-up; similarly, one normally photographs mob and battle scenes with wide-angle lenses—24mm. or 38mm. foci, as a rule—in order to get the maximum field with the minimum of space.

I did exactly the reverse on "Viva Villa."

I made all the close-ups with a wide-angle lens—and the mob and battle long-shots with two- and three-inch objectives.

There was a definite, photo-dramatic reason for this treatment. The story centers on Villa and his companions, but behind them and their action is al-



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ways the drama of Mexico itself—the ever-present thought that Mexico, the nation, is greater than any individual.

Therefore, instead of making close-ups in the normal manner, concentrating all attention on the actor, and subordinating the background, I used 24mm and 38mm lenses, which, even in a close-up, showed a wide expanse of the background, and—due to the short focal length—had sufficient depth of focus to keep the background well defined. In this manner, the background—Mexico and its people—was always in evidence. The audience could not forget that it was there, overshadowing even Villa himself.

Similarly, I made the battle scenes with lenses of a longer focal length in order to mass the mob more compactly together, to add to the sense of confusion a battle always engenders.

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STANDARD METAL CONSTRUCTION FOR SET-PLATFORMING

(Continued from Page 63)

set. The same material may be used over and over, and it is quickly and economically assembled. At the Goumore Studios, Mr. Tammara informs me, a crew of only four men take care of six stages, they work safely at erecting and dismantling the set-platforming. Mr. Tammara also informs me that the metal construction does not give rise to any acoustic troubles.

But set-platforming is by no means the only use of this adaptable construction. With the addition of a standardized wooden platform, it can be assembled to form a parallel of any size. Recently, a production called for a series of shots of the bow-wave of a liner ploughing through the sea. The script demanded close, head-on shots, normally, it would be difficult to make them. If a parallel could be hung by ropes or chains from the bow, it would be none too steady, while photographing the shot from a motorboat running immediately in front of the liner would be even less satisfactory, and none too safe. But the set-platforming crew were able to use their metal sections to form a perfect support for the cameras, and to

do it quickly and accurately. A framework of the tubes was anchored on the ship's deck, and extended forward fifteen or twenty feet from the bow. From there, long upright tubular supports extended down for thirty feet, supporting a camera platform at exactly the desired distance from the prow, and just the right height from the water. It was safe, and steady. A camera crew rode the device and made their scenes while the liner steamed on its regular route across the English Channel.

Another time, a camera-crane was required—and the studio had none available. So they built one out of the standard tubular sections! The crane-arm, of course, could easily be built from these sections, the pivot about which it was elevated required no added parts. The horizontal revolution was obtained by mounting the crane on microphone-boom wheels, which ran in a circular track on a wooden platform, the crane and the undercarriage were also connected by a tubular member fitting into a collar which permitted it to pivot. The base of the crane, built below the platform referred to, was also of the tub-



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ular units, and in turn mounted on rubber-tired microphone-boom wheels. The entire cost of the crane was scarcely more than that of the labor involved in its assembling, and it could be torn down and reassembled as the need arose.

This type of construction has much to recommend it. It is economical, efficient, and amazingly flexible. It benefits the cinematographer directly in making it possible to place the lights exactly right to gain the most advantageous lighting, and makes the moving of any lamp for special effects quick and easy. It reduces excess construction of sets, and wastage of platforming material. And it permits an amazing variety of construction for special and unusual purposes. It seems a very definite step forward in every way.

Zucker Becomes Dealer

Frank C. Zucker, A.S.C., in association with J. Burgi Contner, has formed the Motion Picture Camera Supply, Inc., with offices at 723 Seventh Ave., New York City.

This newly formed company will specialize in equipment and materials for the taking of pictures. They will handle 16 mm., 35 mm. cameras and portable projection equipment, molas, blimps, dollies, Neumade Products, etc. They will also act as the Eastern representatives of Mitchell Camera Corporation and the Fearless Products and accessories.

GETTING GOOD SOUND IS AN ART

(Continued from Page 65)

be satisfactorily fixed upon the sound-track. The Cinematographer, knowing in advance something of the facial characteristics of his players, can modify his lighting, diffusion, etc., to photograph them most favorably. If the leading lady, for instance, has an unattractive nose, he can modify his lighting to correct this flaw, if the leading man has more wrinkles than she gleefully with a youthful part, he can use a heavier diffusion throughout to conceal them. Similarly, the Recording Engineer can modify his recording to minimize vocal shortcomings. In the same way, he can minimize the unnatural effect of the stage-trained actor's habit of "pitching his voice across the footlights," or amplify an inordinately slight voice.

The recording of dialogue is, to my mind, far harder than the recording of music. In the latter, one may use as many microphones as may be necessary, and he is likewise sure of a mechanically consistent performance on the part of the musicians. In recording dialogue, on the other hand, modern practice re-

stricts us almost invariably to a single microphone (a desirable factor generally, as it gives a truer perspective) and with the average actor there is no assurance of a mechanically consistent performance. Between one take and the next, he (or the Director) may decide to change the intonation or emphasis of his reading, which naturally keeps the Recordist on his toes every minute. And in most modern productions, the microphone-boom operator on the set must "follow" as skillfully as any Operative Cinematographer or Akeley-camera specialist.

Laboratory problems affect the Sound Engineer every bit as much as they do



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Getting Good Sound is An Art

the Cinematographer. Every Cinematographer knows he must work well within a definite margin of commercial safety unless he has a perfect laboratory behind him, so too must the Sound Man. In the same way, the co-operation of those on the set—Cinematographer, Director and Players—is of vital importance. An appreciative, understanding Director is a vital factor in making a well-recorded production. The Director who has no time to listen to his Recorder, or to his Cameraman, seldom gets the best of either recording or photography, while others—like Frank Borzage, for instance—co-operate so perfectly that we often deliver better work than we know how.

In this business, no one may safely set himself up as a prophet, but in closing

I will venture the statement that the Sound Engineer of the future will be far less the technician and a more thorough Artist. The day of the initial technical development of sound and sound-recording apparatus is past, and the day of the truly artistic development of sound is dawning. Therefore, while the Sound Engineer of the future will in all probability be, as now, the product of an Engineering College, he will—like the Director of Photography—concern himself for less with the mechanical technique of his craft, and more and more with the artistic application of sound to the cinema. The mechanics of sound will take care of themselves; but the Art of Dramatic Sound-engineering must be built from the experience and artistic instincts of men who realize that recording, like cinematography, is not alone a Science, but a high Art.

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this issue

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... and other Features

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AMATEUR MOVIE SECTION

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Next Month

- The Contributions coming in to us on our Free Film Offer for Backyard Movies are getting better and better. Read this month's offering. It's a timely subject, the Circus and will make a colorful picture for your library.
- There will be another Child Continuity next month. Don't forget that Child pictures are always interesting—and they are the easiest to make.
- There will be tricks that you can do with your camera suggested by members of the American Society of Cinematographers and gadgets you can make yourself!

PROFESSIONAL Criticism of the Amateur picture is a part of the service offered by the AMERICAN CINEMATOGRAPHER. Many are not aware of this. Hundreds of pictures have been reviewed this past year by members of the American Society of Cinematographers for the Amateur.



L. Guy Wilky, A. S. C.

Poor Exposure Lost a Prize

by
L. Guy Wilky, A. S. C.

AS ONE of the judges of the American Cinematographer Amateur Movie contest the most outstanding fault that struck me . . . or should I say the fault that struck me most forcefully in some of the pictures was the exposure—poor exposure I might say, or wrong exposure. As we say in the professional field, they "burned" the scene. Translated this means they put too much light on it.

I recall one picture. A mighty fine picture. Beautiful composition, nice cross-lighting in many scenes, interesting angles, and still it lost out as a prize winner simply because of over-exposure.

This might have been eliminated if that cinematographer had edited those scenes out of the picture, but the fact still remains that a very good photographer spoiled a

prize winning picture by over-exposure on a number of scenes.

Just how we are going to overcome that fault is hard to say. Hard to say because so many amateurs will not follow the obvious method or will not put in hard work to eliminate this hazard.

The easiest and undoubtedly the safest procedure is to use an exposure meter. This in the long run will prove the safest. It is certain the average amateur is not shooting pictures every day as does the professional here in Hollywood. In between pictures the amateur will forget things. He will forget the proper exposure. Perhaps something in the lighting or composition of the scene he is taking throws everything else from his mind. If, however, he could make exposure mechanical it is certain he would be correct more times than he would be wrong.

You see a photographer has a great many things to think of if he wants to make good pictures. There is light, composition, exposure and focus. Those are the highlights. Light and composition can be broken down into many parts. Exposure, however, does not vary a great deal unless you are seeking a certain key. Focuses cannot vary for sharp pictures.

So many things affect exposure. The very nature of the subject you are taking. The light that is falling on it. The nature of the light, the quality of that light. Your exposure meter tells you instantly. Then if, if you use it rightly. It is possible to use an exposure meter wrong, but if the operator will follow the instructions he will be correct. If you are wrong you are not following instructions. At least that is my contention, as I do not believe that any manufacturer is going to try to deliberately fool you. He wants his merchandise to work properly so he is going to give you as correct information as it is possible to give.

While the exposure meter was looked upon as being something of a very questionable value for quite sometime by the professional, more and more of them are observed in the studios being used by the best motion picture photographers. It is another tool of the cameraman, and an important tool, because exposure is one of the most important phases of photography.

With the use of reversal film it is more important that the amateur get nearer to the correct exposure than it is for the professional.

There is said to be a greater latitude in the negative and positive method than there is in the reversal film method of processing.

The negative and positive has a wide latitude in the printing of the positive. One can read the density more accurately than it is possible in the reversal. This latter, however, does in some systems employ the photo-electric cell method of control. This is said to be very accurate within certain degrees of lighting, but is claimed to have a heavy falling off after a certain period. However, those are technical things, not touching very heavily upon our present problem of proper exposure.

It isn't necessary with an exposure meter to go through a series of tests to determine whether or not it is correct. Take it for granted that it is correct. Use the reading it gives you, but be sure that you have followed out all the instructions of how to use that meter properly. Read those instructions over carefully. Proceed according to the instructions, before you expose your film, to accustom yourself to the handling of the meter. While they have been made as simple and fool proof as possible, still it is necessary to have a basic knowledge of how to handle them the same as you must have a basic knowledge of speeds, brakes and clutch before you can drive a car.

The Professional Learns From the Eight

by
Ray Fernstrom, A. S. C.

FOR THE FIRST TIME in my life I could carry a movie camera in my pocket! From then on I became an ardent devotee of the little eight. Bill had called me to help him "shoot" his scout troop so that the film could be run for a meeting of parents.

We planned about forty setups of the camera and having only my professional experience to draw upon I expected this to take a couple of Sundays. Imagine MY FIRST SURPRISE WHEN WE DID THE JOB IN THREE HOURS.

With the ease of a "Browse" we set up in a car for "dolly" scenes, climbed a balcony that could be reached no other way and even "shinned" a flag pole to obtain one of my "Swedish" angles that in professional parlance would have required a high "parallel."

In one game where the boys lined up in a twenty-foot circle we shot pans of boys chasing each other around the outside at a lively pace. The little eight held in hands followed this action, fast as it was, without once losing the action in the splendid finder provided.

Our scout master was a man with splendid character of face. When we back-cross-lighted him and shot him from the ground, requiring but a moment, the effect was really artistic, doing full justice to his strong features.

To obtain the best composition with the entire troop lined up for inspection, we had to shoot from the street at an angle that required some elevation. With the "eight" this merely meant climbing onto one of our cars giving us that "peeping view" of the grounds, filling the empty foreground with a hedge and covering the sky partially with overhanging boughs.

Then to build up this sequence we moved in for closer views of the action. First a follow shot of the color bearers, a dolly shot of the "scout master's view of the scouts" and a low shot of the "scouts' eye view of their leader."

Then the scouts demonstrated first aid. Here we had a chance to shoot those angles that are such an outstanding attraction in all Japanese and Russian Cinematography. Our first showed the boys at work on a broken arm and leg. Here we shot downward at angles that gave us dynamic symmetry in our compositions, and then expected in reverse shots of the patient looking up at the faces of the helping scouts.

We used no reflectors but did use filters to soften shadows, a light yellow-green and a red-orange since our emulsion was panchromatic.

On all stationary scenes we used a tripod and a very



Ray Fernstrom, A. S. C.

steady one too. The free head provided gave our pans and tilts that "slosh-slide" effect so marked in professional results.

One feature we utilized might well be developed for professional work. This pertains to tripods and fast pans. Setting the camera back a foot off the tripod on an extension we were able to swing the lens in an arc away from the point of swivel, removing completely the blur that even today is an objectionable feature of the photography on major studio productions. This simple trick that was hit upon extemporaneously might well develop into an aid to professionals.

With an eight in my pocket now, I can collect locations, test theories on composition, filters, and odd angles without inconvenience or great expense, and can show these theories and ideas in a practical manner far superior to mere words, of which Confucius said a picture equaled ten thousand, and I say a movie, one million.

In the past men have gone on professional assignments and locations carrying still cameras to gather scenes for the home folk. With an "eight" your professional can bring back scenes through his life medium pictures in motion. Now without great cost every trip can be re-lived with his family, every country, its people, happy incidents, people associated with en route, homes visited, events happening on days when traveling, OR not shooting professionally. Every day a pleasure and every pleasure profitable since the scenes taken or locations discovered might well be of value to the cinematographer's professional work.

What with processing of eight mm. in most parts of the world it should be but a small matter when several cinematographers are on a production location for one to trot off in search of new places with his "eight" and return to show these quickly to the director.

As to size, the "eight" that fits your pocket, the tiny

(Continued on Page 91)

Miniature Photography at Night

by
Clarence Slifer, A. S. C.

FOR many years, I have made a hobby of night photography. The belief that some day it would be possible to make instantaneous pictures of night, served as an incentive for continued research in this field. Surely, such an accomplishment would be equal to any of the imaginary achievements of Jules Verne.

Today, such a feat as instantaneous night photography may be performed with almost commonplace regularity even though I made many pictures during this transition from tripod to snapshot night photography. I find it hard to believe that the seemingly impossible has been accomplished by the makers of lenses and photographic emulsions. Their offerings have made available to you, a new and interesting source of subject matter.

The making of night photographs has always demanded the use of the fastest lenses and films obtainable. Very early, during my adventures into this field, I recommended the advantages of the miniature camera for this type of photography. Large aperture lenses have a shallow depth of focus. This condition can only be offset by the use of short focal length lenses. Thus making it advantageous to use the miniature camera. (By actual photographic tests I have found that at f2.0, the 50mm Summar lens on my Leica possessed a much greater depth of focus than did the 7 1/2 inch Tessar lens at f4.5 on my Graflex.)

So early in 1925 when the miniature type Erninox camera, with its then astonishing f2.0 Erninox lens, was placed upon the market, I procured one for night photography. Later, I made a camera especially for this type of work, employing an f1.5 lens. Because of its ability to use motion picture film, I was attracted by the Leica camera. This camera I have used for some time for night photography.

Last fall, when the Leica organization placed upon the market the new f2.0 Summar lens, my interest in night photography was revived and I obtained one at the earliest opportunity. Perhaps it does sound illogical that I should be anxious to try an f2.0 lens, when I had previously used lenses of faster ratings. This, however, can easily be explained.

Lenses are rated by their "f" values. Lenses having low "f" values, i.e. f2.5, f1.5, etc., are termed fast lenses. This is because they normally permit the making of faster exposures than lenses of higher "f" values. This "f" value of lenses is arrived at by a purely mathematical calculation (focal length of lens divided by diameter of lens) and not by any scale of photographic effectiveness. From this it may be seen that although lenses may have the same "f" value, yet due to their design they may differ greatly in photographic speed. Color correction and sharpness are also factors that contribute to the speed of a lens.



Top left photo shot by moonlight, time 1/5 sec., exposure f 2.00. Upper right made by light of paper match after it had flared down, exposure 1 second at f 2.00. Lower photo shot at night, time 1/20th second at f 2.00. Dupont film used on all shots.

Under present conditions, I have found that the following exposures will give nicely fixed negatives, using the f2.0 Summar wide-open on DuPont Superpan. This film being faster in the threshold part of the scale than any film that I know of. Night street scenes in the business or theatre sections, 1/20th second. All normally illuminated interiors at night, 1/20th second. Places where the lighting is above normal, as theatres, boxing matches, etc., up to 1/100th second. Portraits with one paper match as the sole source of illumination, one second. Portraits with moonlight (full) as the sole source of illumination, 15 seconds.

The speed of the film may be still further increased by hypersensitizing it in an ammonia bath or by slightly fogging it after the exposure has been made and just before developing. However, the speed of film is now ample for the majority of the shots, hitherto impossible with the then available materials, without resorting to this added trouble.

An exposure of 1/20th part of a second just about stops all normal slow movement, as people walking, etc. This speed is also about the slowest shutter speed permissible with the hand-held camera. Slower exposures may be made only with great care. I have found the following dodges helpful. By tapping the shutter with a cable release or with a self-timer and by bracing the camera with a neck or foot strap.

I develop my night exposures in D16 developer for the full normal time. For poorly lit subjects the Eastman D82, maximum density, developer may be used. It does, however, give more grain than does D16.

Modern film has much latitude, so detail is recorded in even the grossly over-exposed sections of the negative. As miniature negatives are printed by projection, this detail is easily "dodged in" on the enlargements. I prefer the softer grades of enlarging paper for night photographs.

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A Continuity for Filming Father

by
Mrs. J. Dickinson Reed

THIS article should start with a great big "Warning to Husbands!"—it's ~~not~~ for them! Quite the contrary—it is intended for those long-suffering women, the wives of cinematographers. There must be thousands of us, patient martyrs to our husbands' photographic fancies. Personally, I've posed and acted up and down the whole state of California, while my spouse shot scenery, beasts, and light-effects, or experimented with the continuities which have been appearing in the AMERICAN CINEMATOPHIL. But the worm has turned—here is a continuity I wrote—and made my Lord and Master act in! Sister, try it out on your husband!

MAIN TITLE DAD GOES DOMESTIC

Scene 1 [Fade In] Close-up of a safety-pin. Make this fill the whole picture. Then move the camera back (or lap-dissolve) to show that the safety-pin holds a note, written in a feminine hand, attached to the back of a comfortable armchair. The note reads:

Dear Bill—

Couldn't wait any longer. I'll be back when the bridge-tournament is over. Take care of baby.

Love,
MARY

Scene 2 Long-shot. Father is standing by the chair, looking at the note disapprobably. He shrugs his shoulders, and sits down to read his paper.

Scene 3 Close-up of Father's hands filling his pipe.

Scene 4 Medium close-shot of Father. He puts the pipe in his mouth, and reaches for a match.

Scene 5 Close-up of a small baby in his crib, starting to cry.

Scene 6 Same as scene 4. Father is just lighting his pipe, when he hears something. He stops, listens, and the match burns his finger. He hastily drops the match into the ash-tray, puts down his pipe, and gets up.

Scene 7 Long-shot, in the nursery. The crib is in the foreground. Father comes quickly through a door in the background, and looks down into the crib.

Scene 8 Same as Scene 5. Close-up of the baby, crying.

Scene 9 Medium-shot, of Father and the crib, from a different angle. Father reaches down and picks up the baby—no, baby is quite dry: what else can be the matter? Ah! He has it—the kid's hungry! He puts the baby back into the crib, and hurries out of the picture.

Scene 10 Long-shot in the kitchen (or back-porch). Father comes in and opens the ice-box door.

Scene 11 Close-up inside ice-box. Father's hand reaches in, and hunts for a bottle. There is none. He picks up an ordinary milk-bottle.

Scene 12 Long-shot in kitchen. Father—milk-bottle in hand—is looking for something to mix the baby's formula in. He can't find it. Finally he gets down the family cocktail-shaker.

Scene 13 Close-up of the shaker. Father slaps some milk into it, followed by whatever syrup or the like your baby uses. He spills some of the syrup on the outside of the shaker.

Scene 14 Medium-shot. Father closes the shaker, and begins to shake. He doesn't enjoy it, as the syrup makes the shaker very sticky. Fade Out.

Scene 15 Fade in. Close-up of feminine hands, draining cards at a bridge-table. Fade Out.

Scene 16 Fade In. Same as Scene 14. Father puts the shaker down, and starts to pour the mixture into the baby's bottle. As he can't find the funnel, he spills as much as he gets into the bottle.

Scene 17 Close-up of Father's hands trying to get the nipple over the top of the bottle. He is very clumsy—spilling the bottle several times, etc. Finally he succeeds—after losing most of what he has managed to get into the bottle.

Scene 18 Medium close shot, by the stove. Father puts the bottle in a pan of water, over the fire, to warm.

Scene 19 Long-shot of living-room. Father enters, and picks up his pipe, lights it. He notices something in the paper, and sits down to read it. Fade Out.

Scene 20 Fade In. Close-up of the pan, with the bottle in it. It is boiling merrily. Fade Out.

Scene 21 Fade In. Close-shot of newspaper in front of Father's face, smoke from his pipe puffs out from behind it. Suddenly the paper is jerked down, showing Father's face—he remembers the milk! He jumps up.

Scene 22 Long-shot in kitchen. Father enters hastily, and grabs the pan from the fire. It burns his fingers. He blows on them and swears. He looks around, finds a holder, and gets the pan off the fire. Then he turns off the gas. He holds the hot pan in his hand, trying dazedly to find somewhere to put it. Ah! The ice-box, of course.

Scene 23 Close-up of the ice-box. Father opens the

(Continued on Page 91)

NO STANDARD amateur movie camera is equipped to run film past the lens in reversed direction (travel for taking pictures, and alpha professional cameras can be made to run backward, the effects of reverse film travel are practically always obtained in the printing).

What, then, is the object of heading this discussion as it is headed? Simply to establish the idea that movies may be made backwards for certain effects. The means used professionally are not available to amateurs, but the amateur can do this sort of work very easily, as we shall see.

One of the first tricks the fledgling movie enthusiast tries once he has the "feel" of his camera is to take a picture while holding the camera upside down. For some reason, the first subject so photographed is some friend diving from a spring-board. The psychology behind this unconscious but almost certain choice is obscure—but this is not a treatise on psychology, so we will drop this aspect.

Screened, without performing the magic rites (one of the "secrets" of moviemaking is turning the film and for end, the diver would dive up from the bottom of the picture into the water at the top. Reversed and far and and spliced back in, however, the diver performs the miraculous impossibility of jumping out of the water onto the spring-board. All very clever, and all that sort of thing, but that particular subject has lost its originality by reason of its being overworked.

Because reversed action of the aforementioned diver is so hackneyed a subject, most amateurs shy at the mention of reversed action movie making. This is most unfortunate because it happens to be one of the simplest yet most effective tricks any amateur can film. Forget about the spring-board incident. Use the trick a hundred other ways. But use it wisely.

The underlying principle of the mechanics of making reversed action shots with amateur equipment is simply this: Take the picture while holding the camera upside down. When the film has been returned from the processing station, cut out that upside down scene, turn it end for end (but do not allow the front side to be twisted to the back) and splice it in. Please note that this applies only to 16 mm. film. We'll take up the 8 mm. mechanics in a moment.

Perhaps you know how to do this trick, or it may be a new one to you. Well, it is a safe wager that you haven't figured out why the film taken upside down and turned end for end made backward movies—but as betting isn't legal in many states, we'll pass that "sure thing." Frankly, I still like to toy with the reasoning behind it all, and with your permission, we'll see how it looks in print.

We take the picture upside down. That means that the film really runs past the lens from bottom to top, instead of the normal path of top to bottom. The travel of the film is thus reversed. Since we turned the camera upside down, the image recorded on the film is recorded reversed top to bottom and left to right from what it would have been recorded had the camera been used right side up. Another way of putting it is that the face are where the bottoms of the scenes would normally be, and the lefts where the rights should be, and vice versa, with respect to the other pictures on that roll, the normal pictures.

If we projected this scene as it came back from the developer, the actors would go thru their motions in a normal procedure but upside down to the audience. The first frame exposed upside down would be the first to be projected, also upside down. But upside down pictures wear on the nerves, so we cut out that scene and turn it around, and splice it back in. Now the actors are right



"Cut the upside down scene from the developed roll."

Cinetricks---

side up and the right side is where their right side ought to be. But when projected, they go thru their action backwards!

That was a terribly difficult trick to do, wasn't it? And wasn't it "mysterious"! Certainly and both! Motion picture work hasn't the least iota of mystery—it is plain, common, everyday applied commonsense and don't let anyone change your mind. If you will but stay with me thruout CINETRICKS, perhaps my amateur movie readers will understand my almost fanatical desire hereby to debunk some popular notions standing in the way of better amateur work.

But back to work. You will notice that when you turned the upside down 16mm. film around end for end you kept the same side of the film facing you all the time. That works fine with any film which has symmetrical perforations. The perforations of 35 and 16 are symmetrical about the center of the film, and the single row of the 9.5 Pathe (which isn't used in the United States much) is in the middle, so 35, 16, and 9.5 are simple to turn end for end.

The problem with 8 mm. film, however, isn't quite so simple. It has but one row of perforations when finished, and that one row must be kept on the right side as you face the screen. The reversed action, or upside down shot, then, must be regarded as a problem special to the 8. There are two simple ways out of the difficulty, either of which may be used depending on your own ideas. One is to disregard left and right and just project it that way. The other is to use a mirror or right-angled prism before the lens while taking the shot, to reverse left and right. The 8, in addition to being turned end for end, must also be turned front to back.

Theorists will come forward with the thought that in the case of reversed action shots made on 8, because the shot must be projected with its emulsion on the opposite side of film to that of the shots made normally, quite naturally, this shot will project out of focus. The focal plane of the reversed shot is the thickness of the film away from the plane of the normal scenes, and will be out of focus. To stem at the outset a flood of mathematical proofs that such a film will be out of focus, I challenge my readers to try it out first before arriving at too positive a conclusion.

Perhaps under certain conditions, reversed action shots on 8 will be a bit fuzzy, out of focus, when projected. But when you discover how surprisingly sharp the pictures do screen, and you are puzzled over it, look back to the primitive days when you first discovered the photographic term "depth of focus as composed with lens focal length."



"...and turn and turn and
Action now proceeds in reverse"

Reverse Film Travel

by

Wm. J. Grace

The use of reverse action is in no wise restricted to comedy or frivolous work. Professional work many times makes use of the trick for reasons of mechanical expediency or human safety. Of course, the trick work is done in the optical printer, the negative and positive being run in opposite directions instead of the same direction. Not all reversed action shots possible with the optical printer of the professional are within the capabilities of the amateur with his reversal film which requires that he "build in" his tricks as he takes his pictures.

To mention a reversed action trick which the amateur can not do, witness the golfing instruction series which appeared a year or so ago in our theatres. At various points in the stroke the picture was "stopped" for inspection by the audience as the voice of the expert called attention to position of wrist, forearm, shoulders, and stance. At the end of the inspection the picture continued the action. It was a simple thing for the optical printer to stop the travel of the negative and print a number of successive frames of the halted negative frame, and then, when the proper time had been reached, to start the travel, either backward or forward, of the negative. This example is cited not to act as discouragement but to suggest possibilities.

To suggest, on the other hand, at least one reversed action trick quite within the range of the amateur's equipment, suppose a sequence is desired showing a human target being outlined with the knives of an expert knife-thrower. Few amateur actors care to repeat the necessary faith in even an expert, and few amateurs could afford the engagement of one plying such a trade, so by the trick of reversed action the knives may be convincingly pictured precisely outlining the heroine. Let's go thru the procedure.

With the camera upside down, the scene is started with all the knives stuck in the back-board and a relieved smile on the visage of the human target. Strong thread or fine piano wire colored to blend into the background are yanked

one at a time, the knives flashing out of range of the camera. Meanwhile, the expression of the lady-in-question changes from stoical grimace to one of hope that the first knife misses her person. Being filmed in such a way that it is to be projected backward from the sequence in which it was filmed, the expression must change also in reverse so that the projected shot, when turned end for end and spliced in, will be convincing.

A little practice will develop skill in the "knife-thrower," who, by the way, is not in the picture at all, a rehearsal or two of the target will prove interesting and not difficult. Unless the technique all around is screened, it may need a bit of polishing, but the effect is worth many times the trouble, even if the work were not so extremely interesting in itself.

If the role of teacher by the film route does not concern you, nor does the filming of a play requiring a sequence such as we described, perhaps comedy will be appealing. At any rate, by all means rummage about mentally and imagine the places in your serious or trivial filming which might be made by the trick of reverse action, then try your hand at it. It is easy, it is fascinating, and it is intriguing and entertaining to your audience. Artfully employed, reverse action is most difficult to detect. Boldly exploited for obviously impossible effects, ludicrous moves filmed backwards are immeasurably heightened in effect.

In the summation of this and the preceding article, MOTION CONTROL, why could not some combination of the two tricks be used? Take your diver normal in direction and speed, then take him at half speed diving backward. Or, picture him at half speed forward and follow with a slowed motion backward shot. And reversing to the knife-throwing example, film it at half speed (backward) and the knives will flash into action twice as fast on the screen. Caution the actor, of course, to go thru her pantomime half as fast as she would normally.

Next month we will discuss one of the most intriguing of all the tricks of one work, double exposure. It isn't quite so simple as the trick we've just discussed, but it is so much broader in its possibilities that it is really the ace of the cinematographer's bag of tricks. See you next month, then.

Distortion

Sometimes we may want to get a shot of a person or scene slowly becoming more and more distorted, as in a nightmare sequence, or the like. Now-a-days, this is often done on the Optical Printer, but it can easily be done in the camera, too.

Suspend a fair-sized optical-glass flat in front of your lens, quite close to the lens (if you have a matte-box that will take 2-inch square filters, this is ideal). You begin your scene shooting through the glass, getting a normal effect. When you want the distortion to start, spread a little warm Sweet Oil (or Castor Oil), along the top of the glass. As it flows down over the glass, the picture will become more and more distorted.

If you want to reverse the effect—that is, begin with the scene distorted, and then have it return to normal—you can do it in two ways. You can make the scene as outlined, but with the camera upside-down, and reverse the film end-for-end when you cut the picture. Or you can slowly remove the flat from the matte-box. Each, of course, will give a different effect.

JACK SMITH, A.S.C.



Kodacolor Gives Life To Travel Films

by

John W. Boyle, A. S. C.

A YEAR or so ago, Roy Fernstrom, A. S. C., and I went to Scandinavia to produce a series of travel films. We carried with us equipment for both black-and-white and natural color (Multicolor) cinematography, and returned with nearly 30,000 feet of film. For the sake of safety, we duplicated almost every color shot in black-and-white, but after returning to Hollywood and viewing both sets of film, we virtually abandoned the black-and-white, for the natural-color scenes in every instance proved more attractively dynamic than the monochrome ones. The resulting pictures, including the seven-reel feature, "Sweden—Land of Vikings" and several short-subjects, have all been released in the Multicolor version, and have proved for more successful than similar black-and-white films could have been. Both critics and laymen have told us that the color gives a sense of actuality entirely missing from a black-and-white picture, it is, they have told us, almost as though they had actually made the trip with us, rather than being merely spectators at a movie-show.

Now, if color is so helpful to the professional travel-filmer, it can be equally valuable to the amateur. The amateur's audience is for more likely to be "cold" to a travel-film—and accordingly, it will be more appreciative of the enlivening influence of color. Moreover, the amateur has at his disposal, in the Kodacolor and in European Agfacolor process, a natural-color process for more perfect than anything available to the professional. Being a three-color process, the colors are truer, and since it is not dependent for its color-effects upon any dyes, coloring

filters, or the like, the colors will be more consistent. And with SuperSensitive Kodacolor film now available, coupled with the fact that Kodacolor may now be made under artificial light as well as outdoors, virtually anything that can be photographed in black-and-white can now be photographed in color.

Consider the possibilities of a trip to Sweden, such as the one which gave us "Sweden—Land of the Vikings." You sail from New York, usually in the morning, of an hour which will give you a fine color-shot of the New York skyline, the shipping, and such familiar features of an ocean voyage. The crossing gives you interesting opportunities for effective color scenes aboard the ship—the deck sports are always interesting, and with a little "staging" can be made into a very colorful sequence, while shots in the veranda-café, the bar, etc., are very interesting.

Landing at Gothenburg a week later, you will probably enter the harbor in the evening, but thanks to the mid-night sun, you will still be able to get satisfactory color-scenes, even at eight-thirty or nine in the evening. Gothenburg itself is an interesting city, built nearly three hundred years ago under the direction of Dutch architects, and accordingly interlarded with picturesque canals. Even in the evenings, you can get some lively characteristic scenes showing how Mr. Average Swede amuses himself at the open-air cafes and concerts in the great park of the Horticultural Society (Trädgårdsföreningen), which fronts one of the larger canals.

By all means make your trip from Gothenburg to Stockholm via the Göta Canal. It is in itself a fascinating experience, and the most unusual of picture-material, as well. You travel on a tiny white steamer—a liner reduced to the dimensions of a billy Austin, in order to pass the century-old locks. You steam up the Göta Älv river to Trollhättan, where you begin your climb up the first flight of locks. From there you travel on, through lakes, rivers, and man-made canals, across the heart of Sweden. Along this route are innumerable opportunities for effective scenes: on some of the canal stretches your ship seems to be steaming over the fields, or along shady roads travelled by peasants' carts, bicycles, and an occasional automobile. Such shots as you can secure from the deck are interesting under any circumstances, and doubly so in color. Then you can often land, and get similar shots of your ship, or another, in which the contrast of the tiny white ship steaming along through the verdant green fields is highly effective. A pause is always made at the home and burial-place of John Ericsson, of "Monitor" fame, who built the canal, and should yield very effective scenes. The canal-locks, hand-operated by men whose fathers and forefathers have operated the same locks before them, are worth special attention. So, too, are many of the towns, cities, and quaint medieval castles which you pass en route across Sweden.

Stockholm itself is a city of strange contrasts. Built on an archipelago where the Baltic and Lake Mälaren meet, much of its traffic is water-borne, upon the immaculate little white steamers which are so typically a part of the Swedish scene. Passengers—food—firewood from Finland—all flow in and out among the islands in an unceasingly colorful stream. Ashore, the "old city," with its narrow, twisted streets, and bustling traffic, gives one a glimpse of the Stockholm that was, while the newer quarters, with modern buildings—including Europe's only sky-scraper, a twin building connected with a street-shopping arcade, the modernistically beautiful, yellow-brick City Hall, with its famous roof, each shingle of which bears the name of the citizen who contributed for its purchase, the

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WHEELS OF INDUSTRY

Fototaph Panchromatic 16 mm.

ACCORDING to an announcement from Fototaph of New York City, that company has added 16 mm. panchromatic reversal film to its line of 16 mm. negative and positive film which it has been marketing to the amateur trade.

According to the claim of that organization this film is fully panchromatic and is shot at the normal panchromatic speed of other brands of 16 mm. panchromatic reversal films.

Brooks Developing Tank

BURLEIGH BROOKS announces a new developing tank under the name of Nikor Tank. This tank is made of stainless steel and comes in three sizes, 35 mm., vest pocket and No. 120.

It is the claim of Brooks that this tank is so constructed that it loads very simply.

Canadian Library

CLAIMING one of the largest 16 mm. libraries in Canada, the Regina Photo Supply, Ltd., of Regina, Sask., announces 900 reels of Religious, Educational, Travel and Entertainment films. They are now planning the inclusion of 16 mm. sound subjects in their library.

AGFA 16 mm. Negative

ACCORDING to an announcement made by the Agfa Ansco Corporation, that company is now marketing its Planachrome film in 16 mm. negative.

This negative has the same characteristics as the reversal film in that it is sensitive to all colors excepting Spectral red. The rapid development of the use of negative and positive in this country within the past year has dictated the advisability of this company entering this field. Up until this announcement the choice was practically restricted to Dupont negative.

It is expected that other companies will make announcement of a 16 mm. negative.

AGFA Appoints Processing Plants

THE first company to entrust the processing of reversal film to outside laboratories is the Agfa Ansco Corporation which announces that the territory adjacent to Kansas City, Mo., will be taken care of by the Collin Company, B.M.A. Bldg., Kansas City, Mo., and in Canada by the Street Photo Supply Company, 1479 St. Catherine Street, West, Montreal, Quebec.

These companies will process all types of 16 mm. film sold under the Agfa trademark.

16 mm. Sound Library

THE Sound Film Circulating Library, Inc., has announced the opening of a branch film library for the New York Metropolitan District at the Industrial Finance Corporation in the Graybar Building, adjoining Grand Central Station. This is the first of its branches

to be installed in banks in all of the principal cities in the United States extending from coast to coast.

Each branch library will confine rentals to the trade, that is to business and mercantile and show services to whom clientele applies for film rental. Service to such establishments will be at a trade discount per rental and obviates the necessity of investment by the dealers in pictures.

The library will carry several hundred subjects at all times and each branch will carry at least one complete set of all subjects, it is claimed. Its selections will be those appropriate for schools, church organizations, colleges, clubs, hotels, camps, steamships and industries.

Kodak Filter Holder

A DEVICE that permits a single filter to fit a variety of lenses has been put on the market by the Eastman Kodak Company, designated as the "Cine-Kodak Universal Filter Holder." A metal collar, equipped with rubber-covered coil spring arranged in such a way as to clamp on lenses differing in size, the device provides an unchanging circumference to which the filter may be affixed, thus eliminating the need to buy different filters for different lenses.

The Cine-Kodak Universal Filter Holder's usefulness will be, of course, for persons with interchangeable-lens cameras. It is designed to fit the following Cine-Kodak lenses: f 2.7, 15 mm., f 3.5, 20 mm. (interchangeable style only), f 1.9, 1-inch, f 3.5, 2-inch, f 4.5, 75 mm., f 4.5, 3-inch, f 4.5, 4½-inch. In addition, it will fit many lenses of other makes.

The U7 Cine-Kodak Color Filter is of the correct size to slip over the filter holder, and thus becomes standard when the holder is used.

New Facomat Enlarger

E. LEITZ, INC., 60 East 10th Street, New York City, is announcing a new autofocus enlarger for miniature negatives known as the "Facomat." It resembles the popular Valoy Enlarger, and accommodates all small negatives up to 3x4 cm. A feature of the Facomat is the autofocus arrangement by means of which enlargements from 1½ to 10 diameters can be made with the assurance that the image is in sharp focus.

As with the Valoy, the Facomat permits Leica Camera 50 mm. lenses (Elmar, Hektor and Summar) to be used as enlarging lenses, hence the enlarger may be purchased without lens.

Debie in Hollywood

GEORGE NOFFKA, general manager of Andre Debie, Inc., is in Hollywood, displaying the new model Debie Super Pavo 35 mm. Camera.

While in Hollywood, it is Noffka's intention to appoint a Western representative for the Debie line of cinematographic equipment.

Eastern sales are under the direction of H. R. Kassman, of New York City.



BACKYARD MOVIES

Movie Film Free

E. W. Nelson of Chicago gives us a practical idea for the use of the 8mm. or 16mm. camera. Here is an idea that everyone will find practical. Nelson, of course, gets the roll of Pauchowahic film. Read his suggestion over—see how simple it is, but how practical. Then try your hand at winning a roll of film free. Send your suggestions to the Editor.

Sometime soon, the World's greatest, most stupendous aggregation of ferocious wild animals, death-defying acrobats, unexcelled equestrians and comical clowns is going to honor your town by giving several performances before being called away from your fair city to appear before the Crowned Heads of Europe. In other words, it's circus time! Why not make a movie about the circus?

The winning scenario this month is "Circus Daze," dedicated to all the small boys who, though grown up, still remember the thrill of the big top. Most of the scenes are laid in the circus-tent before the start of the show; they can easily be photographed with a fast lens and Super-sensitive film—and you'll find the circus folk a friendly lot ready to co-operate with you, especially since many of them are, like yourself, amateur movie-makers. So let's go to the circus!

MAIN TITLE CIRCUS DAZE

Scene 1 Shot through a window. A small boy (Jack), outside, runs up to the window, very excited. He stops below the window, puts his fingers to his mouth and whistles.

Scene 2 Extreme close-up of Jack's face—his hand is still at his mouth, and he is whistling.

Scene 3 Same, from a different angle. Repeat this scene two or three times, each shot from a different angle.

Scene 4 Same as Scene 1. Jack is still whistling, and jumping around excitedly. Another small boy (Bob) approaches the window from behind the camera, walking rather listlessly.

Scene 5 Reverse angle of Scene 4. Close shot of the window from outside. Bob's face is against the glass, he is looking out at Jack, but cannot hear what he says.

Scene 6 Same as Scene 4. Jack, outside, is gesticulating wildly. Bob, inside, stands quietly, obviously not understanding. Jack finally motions Bob to open the window.

Scene 7 Reverse-angle, from outside. Jack is in the foreground, Bob is opening the window in the background.

Scene 8 Close shot of Jack, talking wildly.

Scene 9 Extreme close-up of Jack's mouth, talking.

Scene 10 (It will be very effective if the following four scenes can be double-exposed over the close-up of Jack's mouth.) Angle-shot of a fresh circus-poster, taken from lower left-hand corner, as a small boy might see it. Make this a short flash.

Scene 11 Similar flash of poster, from lower right.

Scene 12 Longer flash of a poster (any theatre billboard will provide that, saying, in large letters TODAY. Shoot from straight head-on angle.

Scene 13 Straight angle showing full circus poster.

Scene 14 Close shot of Bob, in the window. His eyes and mouth snap to sudden surprise and excitement. He signals Jack to wait, and rushes away from the window.

Scene 15 Interior-shot of a door, from extreme low angle. Bob suddenly appears in the doorway, gesticulating wildly, and full of nervous enthusiasm. He is plainly asking permission to do something.

Scene 16 Medium-shot of Bob's mother, sitting in a chair, sewing. She stops her work and listens.

Scene 17 Big-head close-up of Bob, talking excitedly.

Scene 18 Close shot of Bob's mother, she smiles, and nods her head.

Scene 19 Close shot of Bob's hand grabbing a cap from the hat-rack.

Scene 20 Long-shot of Mother, with the door in the background. Bob appears cap in hand. His mother looks up, and speaks. Bob disappears to re-appear hastily putting on his sweater. He comes up to his mother, who smilingly makes the final adjustment of his sweater, and kisses him. She shakes her finger warningly at him, as he rushes from the room.

Scene 21 Low set-up on front porch, outside of door. Bob's feet rush out and down the steps, three at a time. Pan the camera to follow, so that when Bob reaches the sidewalk, where Jack is waiting, both boys are fully shown. (A 15mm. lens is best for this shot, as it simplifies focusing.) Jack grabs Bob's arm, and the two boys run down the sidewalk, exiting to the right. Half-way out of the picture dissolve to—

Scene 22 Moving dolly-shot (this can be made by placing the camera in a car, driving along the street following the boys on the sidewalk.) It is a medium close shot of the two boys, half running, half walking, both are talking wildly. Bob is listening, wide-eyed and grinning, Jack is pointing. Stop camera movement just before reaching street-corner, and pan to follow the boys as they dash across the street to a circus-lot. Make this shot from an angle that will show the entire circus layout, showing the grounds being needed for the show. Hold until the boys disappear.

Scene 23 Medium long-shot of a typical circus "boss" leaning against a circus wagon, enjoying a cigar. The two boys come in and, standing directly in front of him plead with him. The "boss" shakes them away with a single gesture, hardly noticing them.

Scene 24 Close-up of the two boys, persistently pleading. Make this from a high angle, as the "boss" would see them.

Scene 25 Close shot of the "boss," from a low angle, as the boys would see him. He looks down, amused at the persistence of the little tykes. He half grins, reaches up and strokes his stubbly chin, then he laughs, and nods consent.

Scene 26 Close shot of the boys. They grin very widely, and stammer thanks. Dissolve or wipe into—

Scene 27 Close-up of Elephant's trunks drawing water out of a trough. Buckets of water are being rapidly poured into the trough. (Shoot this at 8 frames per second.)

Scene 28 (Also 8 frame speed.) Medium long-shot of the boys, running in play with waterpails. If you can get this with an Elephant drinking in the foreground, it will be doubly effective. Dissolve or wipe into—

Scene 29 High shot made horse-stable tent. The boys are busy looking hay and straw. If you can get this with no movement other than that of

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Full scope
to your
movie
artistry
WITH 16 MM.
FILMING
ECONOMY



CINÉ-KODAK SPECIAL

THE CUSTOM-BUILT
16 MM. MOVIE
CAMERA

*If it isn't
an Eastman,
it isn't a
Kodak*



IT'S a 16 mm. camera only in the size of the film it uses...in the simplicity and convenience of its operation. In all else, Cine-Kodak Special is altogether new...amazingly versatile...capable of producing advanced cinematic effects comparable to those of the finest 35 mm. motion picture cameras.

Three of the many features of Cine-Kodak Special are shown here. Others include a reflex, as well as an eye-level finder, which gives exact field and focus at any distance with any of the Special's lenses; interchangeable film chambers, 100-foot

and 200-foot capacities; one- and eight-frame hand crank shafts; double lens turret for any of six interchangeable lenses; camera speeds ranging from 8 to 64 frames per second.

The cost of the basic model, with Kodak Anastigmat f.1.9 lens, 100-foot film chamber, and set of six masks, is \$175. Alterations or adaptations for almost any kind of scientific and technical work will be estimated. For complete details write for the Cine-Kodak Special Book. It is free on request. Eastman Kodak Company, Rochester, New York.

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Cine-Kodak Special's windlass action makes possible a wide variety of double- and multiple-exposure creative operations. As film is wound back, it is automatically taken up on the supply spool. A film meter, joined to the camera's mechanism, registers in individual feet the amount of film run or wound back.

SET OF MASKS

Cine-Kodak Special has, as standard equipment, a set of six masks—oval, circle, two vertical and two horizontal half-masks. No bulky mask boxes are necessary—Cine-Kodak Special's masks are mounted in a tray slot between lens and film. Masks of unusual shapes are available in special order.



VARIABLE SHUTTER

Cine-Kodak Special's variable shutter gives complete control of before, during, and after exposure. To fade out a scene, press the lever from "open" to "closed." To fade in, reverse the procedure. For a dissolve—wind the film back after exposure, then fade in.



"Digging In" for Trick Angle-Shots

You've seen, in professional pictures, shots in which a speeding car, train or horseman rushes right into the camera, finally apparently running right over it. And you've probably wished you could duplicate such shots in your own films. Well, it's easy!

You simply dig a pit, deep enough to hold the camera (preferably on a tripod) and, if possible, the cameraman, as well, though with the automatic cameras and remote-control devices now available, the camera, once properly set up and wound can be trusted to do its work itself. The camera, to secure the best effect, should not be too deep: the lens should be looking slightly over the edge of the pit, so that it photographs the approach of the object. The object moves straight toward the camera. If you are photographing a man or a horse, you won't need to cover the pit, as either man or horse can easily jump across the hole. On the other hand, if you are photographing a car or a bicyclist, you will have to lay a plank track over the pit, for the wheels to run over. If a cyclist, you will need but a single track, of course, placed just right beside the camera, out of the picture, so that the rider can come as nearly as possible straight at the lens, and then pass overhead with, perhaps, only a tiny scene after the scene itself is made.

Another way to do this—especially with action such as railroad trains, and the like, where you really can't dig a pit, is to put the camera in a low set-up where a long straight stretch of track ends in a curve. Then use a telephoto lens—3-inch or over—and the result will be equally successful. The telephoto lens will, of course, bring the train up into the camera, and if you place your camera correctly, the train will fill the picture well before it starts to curve. The same idea, using lenses of still greater focal length—say, six inches—will enable you to get similar shots of an airplane "taking off" right into the camera.

Recently, I saw an amateur comedy which made excellent use of this idea. The story told of a novice trying to ride a bicycle. The comedian had dug a pit, and bridged it with a plank, which he placed across the pit, right next to the camera but just out of the picture. When the clumsy rider approached the camera, he seemed to ride right into it. He finally blurred the whole frame, the effect was such every time I've seen the film shown, the audience involuntarily ducked!

The effect of these shots is greatly heightened, too, if you underexpose—



SKETCH No. 1



SKETCH No. 2

that is, shoot at 12 or even 8 frames per second instead of the normal 16. This speeds up the action, and makes the subject seem to rush faster into the camera. However—don't try this on really fast-moving objects, such as trains, racing cars or airplanes. It would speed the action so much that they'd move too fast to give the right effect!

ARTHUR CAMPBELL

ANIMATED TITLES—WITHOUT REWINDING

A very effective trick for making titles is to paint the letters on a pane of glass which is suspended in front of the camera. Behind the glass, place a good-sized drum, which can be revolved, like the glass developing-drums for "Leco" films. Focus the camera on the letters, since the glass is transparent, any design on the drum will show through. Now, revolve the drum, and you will have an

interesting title with an animated background.

An even better use of the same idea is to make the glass title-card in reverse that is, leave the letters clear, while the rest of the glass is painted a flat black. Then cover your drum with some pattern of high reflective value—say a black-and-white checkered design, or, even better, a similar design made of tinfol and black or grey paper. Light the drum, but not the title-glass. You will thus get a nice black title, with the letters showing clear and white where the tinfol reflects the light through them. If you turn the drum, the checkered pattern will give you an interesting, animated title, in which the letters themselves flicker on and off. You can use this same idea for animated inserts of flashing electric signs. If you orange the drum with horizontal strips of black and silver, and revolve it, your sign will flash on and off very realistically.

Similarly, if you cover your drum with paper graduated from white (or silver) to dead black, you will be able to make very good fade-outs and fade-ins. If the graduation runs spirally about the drum, you will get an interesting fade somewhat like a wipe. You can also use the drum, without the glass, for making "roll-up" titles.

This glass-title idea is capable of infinite variations. For instance, replace the drum with a curtain of strips of tinfol or white paper, against a black background. Set an electric fan where it will blow these strips, and you'll have another interesting title-effect.

These ideas, with the addition of color, will also give some novel effects in Kodachrome titles, especially since it is now possible to make Kodachrome with Photoflood lamps.

ARTHUR CAMPBELL

A SYNTHETIC WATERSPOUT

Several years ago, while photographing "The Johnstown Flood," I had to create a waterspout. It takes a few accessories, but it is very simple. You take a square, glass-sided tank to goldfish-aquarium will do with an outlet in the center of the bottom. Fill the tank with water, let in from a pipe or a hose placed at the side, so that the water moves in a whirl. The camera is set up on the scene, upside-down, to give reversed action. When you are ready, pull the plug at the bottom, keeping the inlet hose going a bit, so that the water runs out in a spiral swirl. When it is whirling properly, pour some red or black ink into the surface of the water, and start your camera. The ink will creep down the swirl, and finally outline it sharply. As the ink will photograph strongly black, your picture will show a fine swirling cone, which will excellently represent a waterspout or tornado.

JACK SMITH, A S C

A CONTINUITY FOR FILMING FATHER

(Continued from Page 83)

door, and shoves the pan right in. Fade Out

Scene 24 Fade in Close shot of feminine hands at bridge-table. Fade Out

Scene 25 Fade in Same as Scene 23. Father takes the pan out of the ice-box. He still uses the holder.

Scene 26 Medium long-shot in kitchen. Father comes in with the pan, still holding it gingerly with the holder, and sets it down on the table.

Scene 27 Close-up of the pan. It is so cold that it freezes over with condensed moisture. You can get the effect of the pan suddenly freezing by filling it with ice-water so that it freezes, and making the scene with the camera up-and-down. Half-way through the scene, stop the camera—without moving it—and clean off the pan, so that it is bright, and finish the scene. When you assemble the film, cut this scene out, and splice it in so that it is right-side up!

Scene 28 Close shot. Father pulls up his left sleeve, and lets a few drops of milk flow on his wrist. But—it's too cold!

Scene 29 Medium shot, by stove. Father puts the pan back on the fire. Fade Out

Scene 30 Fade in Close-up of feminine hands shuffling cards. Fade Out

Scene 31 Fade in Close-up of Baby, drinking contentedly.

Scene 32 Medium-shot of Baby, in crib, still drinking. Father is arranging a pillow to support the bottle.

Scene 33 Long-shot of nursery. Father has arranged the bottle so he won't have to hold it, he smiles contentedly, and leaves. Fade Out

Scene 34 Fade in Father is sitting in his chair, reading and smoking contentedly.

Scene 35 Close-up of Baby, crying again.

Scene 36 Close-up of Father. He looks up, irritatedly.

Scene 37 Medium long-shot of Father. Resignedly, he lays down his pipe, folds up his paper, gets up, and leaves the room.

Scene 38 Medium-shot of Baby, in his crib, crying. The milk-bottle is empty.

Scene 39 Medium long-shot by crib. Father picks up the baby—and to his disgust finds suspicious moisture. He carries him properly over to the dressing-table, and starts to unpin the diaper.

Scene 40 Close-up of Father. He is very disgusted.

Scene 41 Medium-shot. Father gets the diaper off. He looks around for

some place to dispose of it. There is none. He is worried.

Scene 42 Close-up (big head) of Baby—crying loudly.

Scene 43 Medium long-shot of Father, diaper in hand. He is desperate. Finally a look of resolution comes, and he crumples it and shoves it into his pocket.

Scene 44 Medium-shot. Father stands by the bureau, and hunts through the drawers—not a single diaper is to be found! He looks around, still more worried.

Scene 45 Close-up of Baby, crying.

Scene 46 Close-up of linen tablecloth on top of the dresser.

Scene 47 Close-up of Father. A relieved and resolute look comes into his eyes.

Scene 48 Medium-shot. Father shows the flowers, etc., faces the dresser-top, knocking some of the things on the floor, and hastily grabs the cloth.

Scene 49 Close shot of Father, by the table, trying clumsily to fold the cloth diaper-wise. Repeat this from several angles, with Father getting more and more clumsy. Fade Out

Scene 50 Fade in Close-up of bridge-table, from above. The hands are still playing. Fade Out

Scene 51 Fade in Father has finally gotten the cloth folded fairly well.

Scene 52 Close-shot of Father. He sets the cloth down, and reaches for the talcum powder. He starts to shake some on the baby, but none will come out. Finally he forces the top off, and a flurry of powder, which generously covers his face, hair, clothes, etc., and unconsciously dumps about half a canful onto the baby. (The baby need not be shown. In previous shots, it has been suggested that he is there, and the audience will imagine that in this shot, which cuts above the level of the baby, that he is still there.)

Scene 53 Father sets the baby in the crib, and tiptoes out.

Scene 54 Close-up of the baby, asleep. Fade Out

Scene 55 Fade in Medium long-shot of Father, getting ready to settle down again. He picks up pipe and paper but does not sit down.

Scene 56 Long-shot of the kitchen, coming in the backdoor, with a large cake of ice. He thumps it down on the floor, obviously making a lot of noise.

Scene 57 Close-up of Baby. He is awake, and cries.

Scene 58 Father rushes into the nursery, looks at Baby, and picks him up. Father starts walking the floor.

Scene 59 Close-up of Father's feet, walking up and down. Fade Out



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TITLE 57-466 steps later - -

Scene 60 Fade In. Some as scene 59. Father's feet are still walking, but more slowly. His suspenders trail behind on the floor, and the trousers sag dejectedly. He stops, rubbing his foot against his ankle, as though the feet were very tired.

Scene 61 Medium long-shot. Father, his back to the camera, sets Baby down in the crib.

Scene 62 Close-up of Baby, asleep once more.

Scene 63 Same as Scene 61. Father turns, and tiptoes away.

Scene 64 Close shot of front doorbell. In the foreground is a woman's purse, with feminine hands rummaging through, obviously hunting for a key which isn't there. The purse is snapped shut, and one hand rings the bell.

Scene 65 Close-shot of Baby, awake and crying.

Scene 66 Medium-shot of front-door, from outside, over the woman's back. The door bursts open, and Father, very bedraggled, and covered with powder, rushes out. He stops abruptly, and his anger turns to relief—Mother is home again!

Scene 67 Long-shot of Mother going into nursery, closing the door behind her.

Scene 68 Father is back in the living-room, and sinks down into his chair, contented and at peace with the world. Suddenly he looks startled, and reaches for his pocket. He pulls out the diaper! More disgusted than ever, he eyes it, and then things it savagely away. He raises his paper, and once more the smoke puffs up from behind it. Fade Out.

The End.

This film should use between 300 and 400 feet of 16mm. film. Any woman who has ever left her husband to tend to the baby alone can direct it, and embellish it with innumerable touches of realism. And the situations it puts Father in should be ample repayment for all his husbandly sins as a director of photography! If he has the equipment for making interiors, you can try him under his own lights. If he hasn't, you can take the interior scenes on a porch, and get the kitchen sequence with SuperSensitive and a photoflood or two in the regular fixtures. Father's living-room scenes can be made in the garden, or on a porch. In fact, the story can be adapted to almost any location, without losing the interest created by the situations. Try it out on your husband—even if you have to borrow a baby for it!

Backyard Movies

(Continued from Page 121)

the boys, shoot at 8 frames per second. Dissolve or wipe into—

Scene 30 Close-up of him cage, made (if possible) with wide-angle lens between the bars, here is a chance for a beautiful animal shot.

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He grins broadly, watching them and nods his head in admiration.

Scene 46. Shot over the "boss's" shoulder, showing the boys disappearing in the distance. Dissolve or wipe into—

Scene 47. Moving dolly-shot of feet and legs of the two boys walking steadily homeward—the reverse of Scene 22. They are tired, but still excited, for they walk alternately fast and slow.

Scene 48. Pan shot, of the two boys' feet walking along. Stop the camera movement at the feet of a girl facing the camera. One pair of boy's feet slows down and stops, the other pair continues. The feet that have stopped register shyness. The other boy's feet return, almost to the others. The boy's feet that have stopped, turn toward the feet of his companion, then again to the girl. The other boy's feet turn and run off, follow with the camera for a short distance, but not enough to show which boy it is.

Scene 49. Low angle on porch steps (from side). A boy's feet enter, and climb laboriously upward.

Scene 50. Similar angle, on porch. The feet pass through the door, which slams behind them.

Scene 51. Interior of living-room, close shot of door. It opens, and Bob enters, not too fast, and, as he carefully closes the door behind him, he sighs.

Scene 52. Close shot of Bob's mother. She looks up, inquiringly.

Scene 53. Close shot of Bob. He is standing before his mother (the shot will be especially good if made across Mother's shoulder). He smiles happily, and digs down into an inside pocket, bringing out two tickets, which he hands to his mother, smiling proudly, and indicating that they are for her and himself.

Scene 54. From the side, close shot as Mother hugs Bob closely to her.

Scene 55. Close-up (big head) of Bob, smiling over his mother's shoulder. IRIS OUT.

The End

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Miniature Photography At Night

(Continued from Page 82)

Very effective prints may be made by printing on buff stock and by slightly tinting the prints either green or blue. The ideal printing medium for night scenes is the bromal process, for by it prints possess a color and an atmosphere obtainable by no other process.

Lenses should be well shaded during night photography and all unscreened powerful light sources should be avoided as much as possible. The 50mm. collapsible Summar lens and the 75mm. Hektor lens for the Leica camera are supplied in non-flaring mounts. This will permit these lenses to be more closely shaded by using a rectangular

shaped lens shade. A 50mm. lens rated as f2.0 has only a one-half inch diameter piece of glass to be shaded. This is quite a contrast to lenses of longer focal lengths.

Weather conditions alter the effects obtained in night photography. Rain greatly adds charm to street shots, although the streets have a tendency to appear darker than when dry. Likewise effectual shots may be made after a fresh snowfall. Moonlight aids in boosting up shadow detail.

Subject matter for night photography is too numerous to mention. In fact, photographs can be made under most all conditions where there is sufficient light for the eyes to see clearly. So don't be afraid to use that miniature camera of night.

Kodacolor Gives Life To Travel Films

Royal Palace, the Royal Opera, fronting on a great square thronged with flower-vendors, and many other buildings like the camera's lens. The left-handed traffic, with its blue-and-white trams and red motorbuses, the strange signs outside the shops, the department-store interpreters who wear tiny flag-emblems denoting the languages they speak (English and American are counted as separate tongues, if you please!)—all are details one should not miss recording, and which pass tremendously through color.

The great historical park-museum, the Skansen, is an unique open-air exhibit of traditional Sweden: peasant houses, farms, costumes and the like from every quarter, perfectly and occasionally preserved by these folk who have a great veneration for the picturesque past of their land. The Skansen is perhaps one of the best places to film the colorful peasant costumes of old Sweden, and the traditional Swedish folk-dances.

Dalecarlia—known to Swedes as Dalarna—is probably the most picturesque province of the land. Visit Lake Siljan, "the Eye of Dalarna" on midsummer-day, when every house is decorated with greenery, and community maypole dances are held everywhere, lasting often for the whole day—all of which is sufficiently sunlit for color-photography and eminently worth several rolls of film. In this same province is an unique school of the ancient handicrafts—spinning, dyeing and weaving, as they were practiced for centuries. One of the most interesting sequences of "Sweden—Land of the Vikings" was made here, and it should be duplicated in any amateur color-film of Scandinavia. The typically Swedish buildings, red-pointed, set among the greenery with the pupils, clad in traditional peasant-costumes of their own making, at their looms, spin-

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ring-wheels and dye-vats make an absorbingly interesting color sequence.

Another side-trip, well worth taking, is a visit to Visby, the ancient Hanseatic "City of Roses and Ruins" on the Baltic island of Gotland. From the first to the sixteenth centuries Visby was the dominant commercial city of northern Europe, ruled by powerful merchant-princes, whose repentance after occasional lapses into piracy is credited with the responsibility for Visby's sixteen great churches and cathedrals, which still stand, though in ruins. You can obtain some magnificent color-plates in these ruins, especially if you visit during the performance of the annual historical pageant, in which ancient costumes of the middle ages are taken from the museums and worn by the players.

Due to its northern location, much of Sweden is blessed with the true Midnight Sun, which enables filming—even in natural-color—at any hour, in the more southerly sections, of course, there is a brief twilight during the summer nights, but even so, photography is possible at far later and earlier hours than in this country. Though there is plenty of rain, which keeps things beautifully green, you can count on almost perfect photographic weather—clear, with blue skies and the fluffy white clouds all photographers yearn for. 16mm processing and supplies are easily available, especially through Eastman's representatives, Hasselblad's Photographiska A.B. of Stockholm and Göteborg, who maintain excellent 16mm processing plants.

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The Professional Learns From the Eight

(Continued from Page 81)

tells that even if you carry along a large supply are not bulky, the advantages of the "eight" to the professional become immediately apparent. When one considers that the picture thrown on the screen from the tiny image covers a breadth of fully forty-eight inches with beautiful success, the small camera has no disadvantages to the professional as supplementary equipment.

A cinematographer is happiest when hard at work. If you have ever been away on location with bad weather holding up production, you will know how depressing such days can be to men of ambition. I have found that many fine scenes can be shot using the little "eight," even in the rain. At times the result has been so good we have gone out on subsequent "bad" days and shot rain sequences with our larger equipment as a result of play with the "eight." In this manner the little camera soon pay for themselves to the professional. Fine tools make for fine craftsmanship. The excellent workmanship in these tiny outfits is on a par with the finest studio cameras, removing any last doubt from my mind that we might well use this tool to our personal progress and pleasure.

UNDERWATER SHOTS ON LAND

A simple way to make "underwater" close shots is to stretch fine barbinette screening on wooden frames, and suspend these screens—two of them, close together—about six or eight inches in front of the lens. Unlike most scenes which require shooting through such gauze, the effect in this type of shot depends on having some light strike the screens, coming from the side of the camera. The two screens are slowly moved past each other, in opposite directions, while the scene is made. This gives the effect of shooting through water. With the right kind of a background, the illusion is perfect. You must calculate the length of your action so that you won't have to reverse the movement of the gauze-screens. It does not matter whether or not the gauze is perfectly flat on the two frames, for the effect comes from the relative movement of the meshes of the two screens. No increase in exposure is necessary. You can make excellent miniatures this way, of toy submarines, sinking ships, etc., suspended on wires, these should be shot at 32 or 48 frame speed.

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\$1,000 in *CASH PRIZES* FOR OUR AMATEUR MOVIE CONTEST

EQUIPMENT PRIZES

Here are a few of the equipment prizes that will be given in this competition.

EASTMAN KODAK CO. gives a 16 mm. Kodascope Model K-75 Projector.

Value \$235.00
BELL & HOWELL . . . To the highest winner using a Bell & Howell Camera . . . Merchandise to the value of \$125.00 will be given . . . To the second best picture using Bell & Howell camera, merchandise to the value of \$75.00

VICTOR ANIMATOPHON CORP. gives a Model 5 16mm. Camera with F 2.9 Focusing Mount Dolyour lens.
List Price \$175.00

CRAIG MOVIE SUPPLY CO., of Los Angeles, will give a Senior Ravind and Spilcor.

Value \$19.50
HARRISON & HARRISON will give one of their universal Filter Holders and a set of 11-inch Multi-Filters consisting of yellow, red and green filters.
Value \$14.00

AGFA ANSCO CORPORATION gives 12 hundred foot rolls, Super Fox Reversible 16 mm. film to the highest winner using Agfa film. Value, \$94.00
Also 12 one hundred foot rolls Pleoachrome Reversible Film to the second winner using Agfa film. Value \$54.00

SUNNY SCHICK gives one Model MSA Electrophot.
Value \$17.50

This \$1000 will be divided very simply. There will be a grand prize of \$250.00 for the best all around picture. There will be from 10 to 15 prizes in the various classifications of \$50.00 each. Even though you may not win the first prize you would have a chance at the \$50.00 given for the best picture presented in the following classifications: Scenic, Travel, Educational, Scenario, Home Movies, Kodacolor, Technical and any other classifications which might be brought forth by the entries made.

The American Cinematographer reserves the right not to declare a prize for any class if in the opinion of the judges there is not a picture submitted sufficiently good to be classed a prize winner.

If you intend to enter this contest, please send coupon on this page so that we might send you official entry blank.

Please send me one of your official entry blanks. I intend to enter a (16mm. 8mm. 9½mm.) picture in your 1934 contest. I understand my entry must be in your office not later than October 31, 1934.

Name

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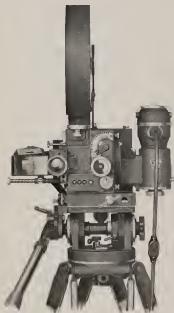
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